SONY

COLOR VIDEO CAMERA

FCB-EX480A
FCB-EX480AP
FCB-EX48A
FCB-EX48AP
FCB-EX45A
FCB-EX45AP

SERVICE MANUAL

1st Edition

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

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Manual Structure

Purpose of this manual

This manual is the Service Manual of the Color Video Camera FCB-EX480A/EX480AP/EX48A/EX48AP/EX45A/EX45AP.
This manual contains the service overview, adjustments, troubleshooting, command list, spare parts and diagrams.

Related manuals

In addition to this Service Manual the following manual is provided.

- **"Semiconductor Pin Assignments" CD-ROM (Available on request)**
  This "Semiconductor Pin Assignments" CD-ROM allows you to search for semiconductors used in B&P Company equipment.
  Semiconductors that cannot be searched for on this CD-ROM are listed in the service manual for the corresponding unit. The service manual contains a complete list of all semiconductors and their ID Nos., and thus should be used together with the CD-ROM.
  Part number: 9-968-546-XX

Trademarks

Trademarks and registered trademarks used in this manual are as follows.

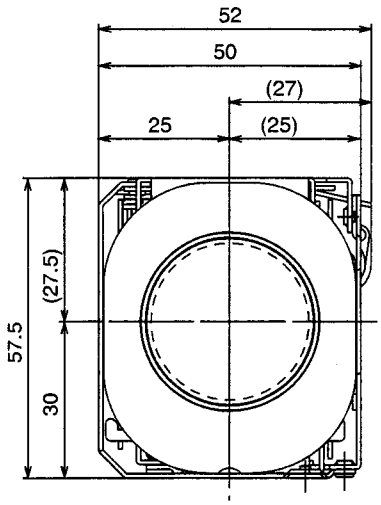
- MS-DOS and Windows are registered trademarks of Microsoft Corporation.

Section 1
Service Overview

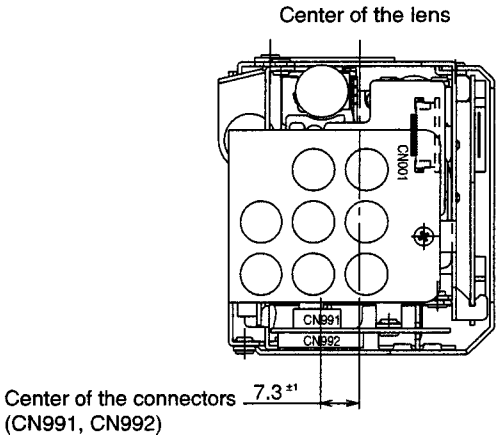
1-1. Dimensions

FCB-EX480A/EX480AP

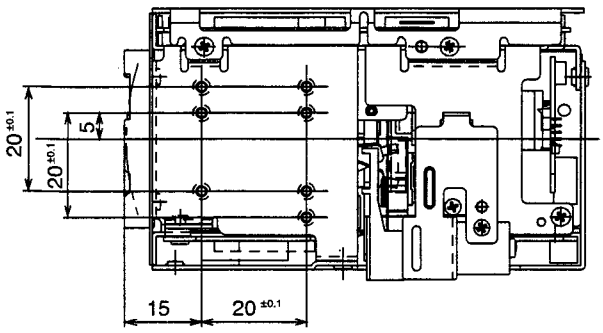
Front view



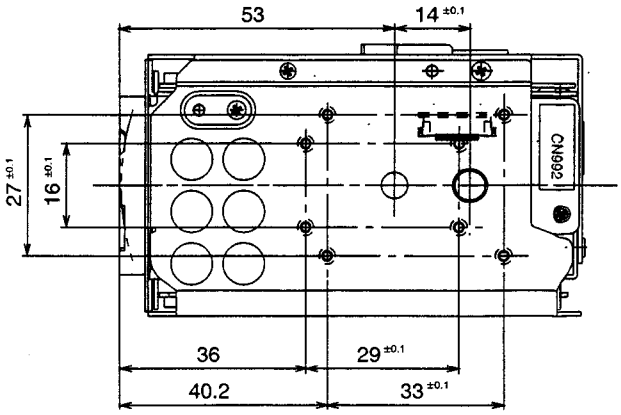
Rear view



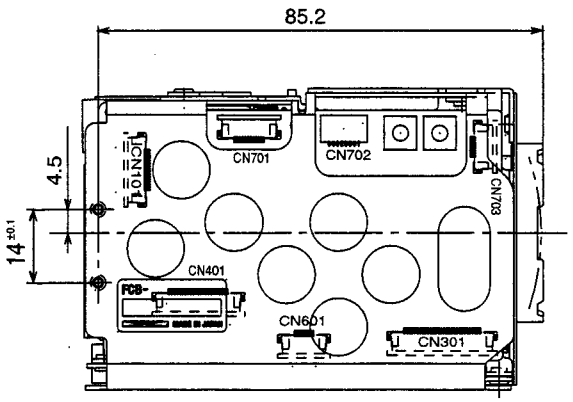
Top view



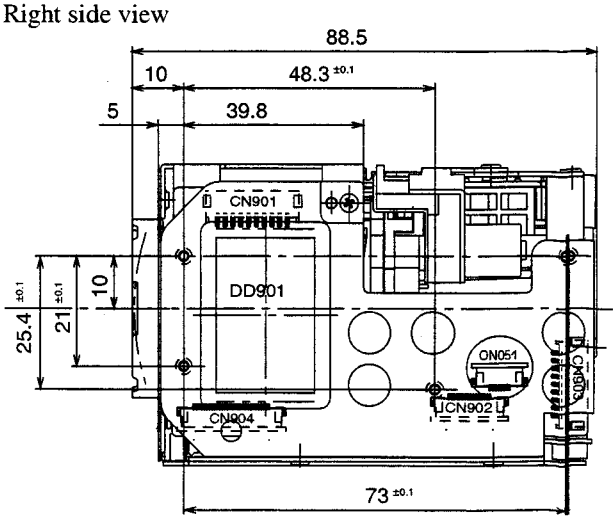
Bottom view



Left side view



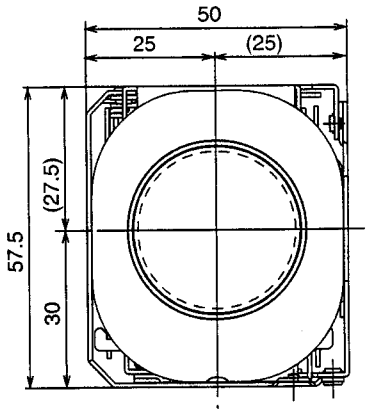
Right side view



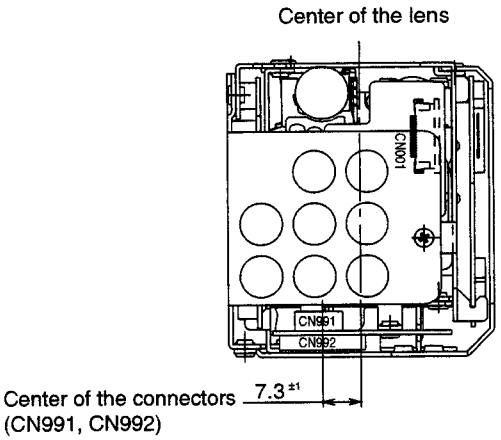
Unit: mm

FCB-EX48A/EX48AP/EX45A/EX45AP

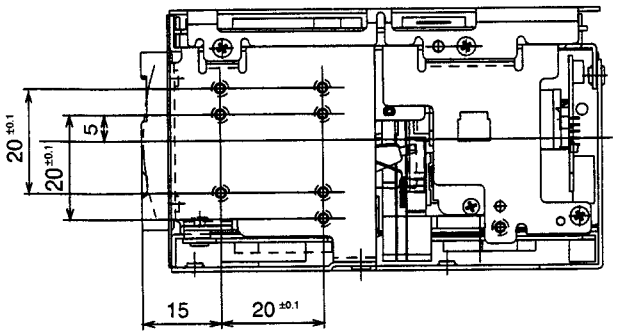
Front view



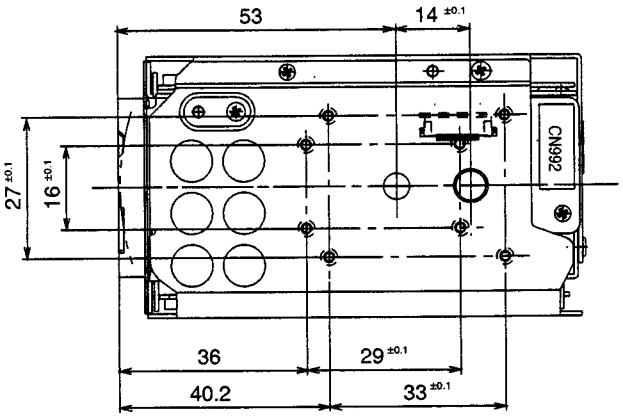
Rear view



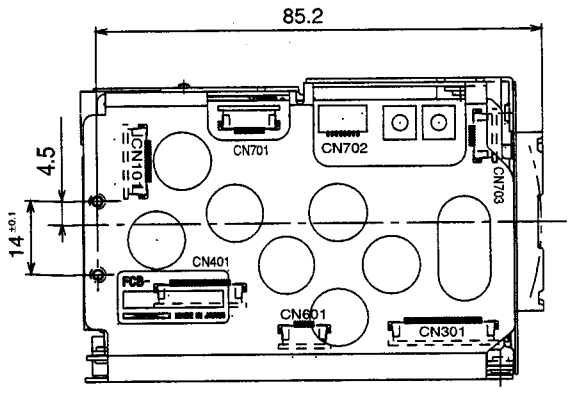
Top view



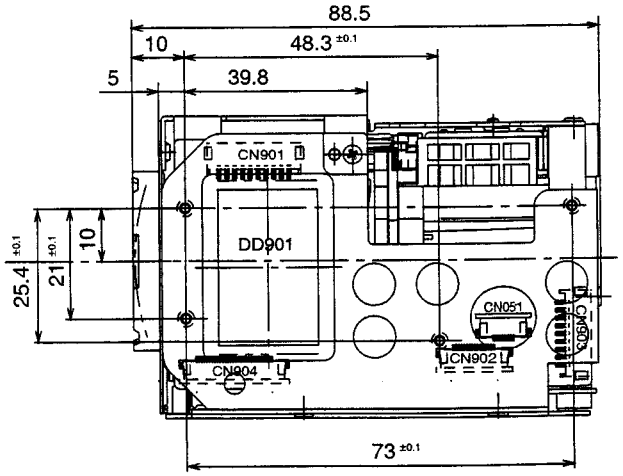
Bottom view



Left side view



Right side view



Unit: mm

1-2. Sepecifications

Item	FCB-EX480A/EX480AP	FCB-EX48A/EX48AP	FCB-EX45A/EX45AP
CCD	EX-VEIW CCD	EX-VIEW CCD	Super HAD CCD
Auto ICR function	○	×	×
ICR function	○	×	×
Minimum illumination	0.7 lx (F1.4, normal shutter speed) 0.05 lx (F1.4, 1/4 shutter speed) Less than 0.01 lx (F1.4, 1/4 shutter speed, ICR ON)	0.7 lx (F1.4, normal shutter speed) 0.05 lx (F1.4, 1/4 shutter speed) 0.05 lx (F1.4, 1/4 shutter speed)	1.0 Lux
Freeze	○	○	×
Auto Slow Shutter	○	○	×
Slow Shutter function	○ 1/1 to 1/10000 sec.22 steps (NTSC) 1/1 to 1/10000 sec.22 steps (PAL)	○ 1/1 to 1/10000 sec.22 steps (NTSC) 1/1 to 1/10000 sec.22 steps (PAL)	× 1/60 to 1/10000 sec.16 steps (NTSC) 1/50 to 1/10000 sec.16 steps (PAL)
CCD sensor	1/4 type IT CCD	1/4 type IT CCD	1/4 type IT CCD
Signal system	NTSC [FCB-EX480A]	NTSC [FCB-EX48A]	NTSC [FCB-EX45A]
	PAL [FCB-EX480AP]	PAL [FCB-EX48AP]	PAL [FCB-EX45AP]
Picture elements	768 (H) × 494 (V) [FCB-EX480A]	768 (H) × 494 (V) [FCB-EX48A]	768 (H) × 494 (V) [FCB-EX45A]
	752 (H) × 582 (V) [FCB-EX480AP]	752 (H) × 582 (V) [FCB-EX48AP]	752 (H) × 582 (V) [FCB-EX45AP]
Horizontal resolution	470 TV lines [FCB-EX480A]	470 TV lines [FCB-EX48A]	470 TV lines [FCB-EX45A]
	460 TV lines [FCB-EX480AP]	460 TV lines [FCB-EX48AP]	460 TV lines [FCB-EX45AP]
Lens	×18 Zoom f = 4.1 (WIDE) to 73.8 (TELE) mm (F1.4 to F3.0)	×18 Zoom f = 4.1 (WIDE) to 73.8 (TELE) mm (F1.4 to F3.0)	×18 Zoom f = 4.1 (WIDE) to 73.8 (TELE) mm (F1.4 to F3.0)
Digital zoom	×12 (×216 with optical zoom)	×12 (×216 with optical zoom)	×12 (×216 with optical zoom)
Angle of view (H)	Approx. 48 degree (WIDE end) Approx. 2.7 degree (TELE end)	Approx. 48 degree (WIDE end) Approx. 2.7 degree (TELE end)	Approx. 48 degree (WIDE end) Approx. 2.7 degree (TELE end)
Min. working distance	10 mm (WIDE end) 800 mm (TELE end)	10 mm (WIDE end) 800 mm (TELE end)	10 mm (WIDE end) 800 mm (TELE end)
Sync system	Internal/External (V-Lock)	Internal/External (V-Lock)	Internal/External (V-Lock)
Recommended illumination	100 to 100000 lux	100 to 100000 lux	100 to 100000 lux
Minimum illumination	[FCB-EX480A] 0.7 lux (F1.4, 1/60 shutter) 0.05 lux (F1.4, 1/4 slow shutter)	[FCB-EX48A] 0.7 lux (F1.4, 1/60 shutter) 0.05 lux (F1.4, 1/4 slow shutter)	[FCB-EX45A] 0.7 lux (F1.4, 1/60 shutter) 0.05 lux (F1.4, 1/4 slow shutter)
	[FCB-EX480AP] 0.7 lux (F1.4, 1/50 shutter) 0.05 lux (F1.4, 1/3 slow shutter)	[FCB-EX48AP] 0.7 lux (F1.4, 1/50 shutter) 0.05 lux (F1.4, 1/3 slow shutter)	[FCB-EX45AP] 0.7 lux (F1.4, 1/50 shutter) 0.05 lux (F1.4, 1/3 slow shutter)
S/N ratio	More than 50 dB	More than 50 dB	More than 50 dB
Electronic shutter speed	1/1 to 1/10000 sec. (22 steps) [FCB-EX480A]	1/1 to 1/10000 sec. (22 steps) [FCB-EX48A]	1/1 to 1/10000 sec. (22 steps) [FCB-EX45A]
	1/1 to 1/10000 sec. (22 steps) [FCB-EX480AP]	1/1 to 1/10000 sec. (22 steps) [FCB-EX48AP]	1/1 to 1/10000 sec. (22 steps) [FCB-EX45AP]
White balance	Auto, ATW, Indoor, Outdoor, One-Push, WB, Manual WB	Auto, ATW, Indoor, Outdoor, One-Push, WB, Manual WB	Auto, ATW, Indoor, Outdoor, One-Push, WB, Manual WB

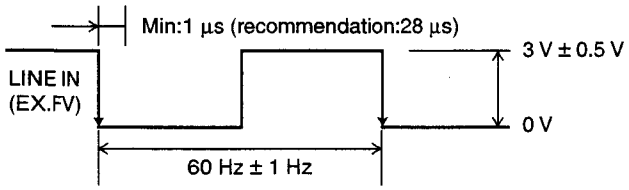
Item	FCB-EX480A/EX480AP	FCB-EX48A/EX48AP	FCB-EX45A/EX45AP
Gain	Auto/Manual (– 3 to 28 dB, 16 dB steps)	Auto/Manual (– 3 to 28 dB, 16 dB steps)	Auto/Manual (– 3 to 28 dB, 16 dB steps)
AE control	Auto, Manual, Priority mode, Bright, EV compensation, Back light compensation	Auto, Manual, Priority mode, Bright, EV compensation, Back light compensation	Auto, Manual, Priority mode, Bright, EV compensation, Back light compensation
EV compensation	–10.5 to +10.5 dB (1.5 dB steps)	–10.5 to +10.5 dB (1.5 dB steps)	–10.5 to +10.5 dB (1.5 dB steps)
Flicker compensation	Auto	Auto	Auto
Focusing system	Auto (Sensitivity :H, L), One-Push AF, Manual, Infinity, Interval, Zoom Trigger AF	Auto (Sensitivity :H, L), One-Push AF, Manual, Infinity, Interval, Zoom Trigger AF	Auto (Sensitivity :H, L), One-Push AF, Manual, Infinity, Interval, Zoom Trigger AF
Picture effects	Neg. Art, Black&White, Mirror image	Neg. Art, Black&White, Mirror image	Neg. Art, Black&White, Mirror image
Camera operation switch	Zoom TELE, Zoom WIDE	Zoom TELE, Zoom WIDE	Zoom TELE, Zoom WIDE
Aperture control	16 steps	16 steps	16 steps
Preset	6 way	6 way	6 way
Serial interface	VISCA protocol (TTL/CMOS), 9.6 Kbps, 19.2 Kbps, 38.4 Kbps, Stop bit 1/2 bit	VISCA protocol (TTL/CMOS), 9.6 Kbps, 19.2 Kbps, 38.4 Kbps, Stop bit 1/2 bit	VISCA protocol (TTL/CMOS), 9.6 Kbps, 19.2 Kbps, 38.4 Kbps, Stop bit 1/2 bit
Video output	VBS:1.0 Vp-p (Sync Negative) Y/C Output	VBS:1.0 Vp-p (Sync Negative) Y/C Output	VBS:1.0 Vp-p (Sync Negative) Y/C Output
Storage temperature/ Humidity	–20 to 60 °C/20 to 95 %	–20 to 60 °C/20 to 95 %	–20 to 60 °C/20 to 95 %
Operating temperature/ Humidity	0 to 50 °C/20 to 80 %	0 to 50 °C/20 to 80 %	0 to 50 °C/20 to 80 %
Power Consumption	Approx. 1.5 to 3.2 W	Approx. 1.5 to 3.2 W	Approx. 1.5 to 3.2 W
Power voltage	9 to 13.2 V DC	9 to 13.2 V DC	9 to 13.2 V DC
Weight	Approx. 225 g	Approx. 225 g	Approx. 225 g
Dimensions	[FCB-EX480A] 50.0 × 57.5 × 88.5 mm (W × H × D)	[FCB-EX48A] 50.0 × 57.5 × 88.5 mm (W × H × D)	[FCB-EX45A] 50.0 × 57.5 × 88.5 mm (W × H × D)
	[FCB-EX480AP] 52.0 × 57.5 × 88.5 mm (W × H × D)	[FCB-EX48AP] 52.0 × 57.5 × 88.5 mm (W × H × D)	[FCB-EX45AP] 52.0 × 57.5 × 88.5 mm (W × H × D)

1-3. Connector and Pin Assignment

CN992 (IF-093 board)

Pin No.	Signal name	Level	
1	RD	CMOS 5 V	Read Data (low: max 0.8 V, high: min 2.0 V)
2	TD	CMOS 5 V	Send Data (low: max 0.1 V, high: min 4.4 V)
3	GND (for RXD&TXD)		
4	DC IN	9.0 V ± 3 V	
5	GND (for DC IN)		
6	VBS OUT	1.0 V ± 0.2 V	
7	GND (for VBS OUT)		
8	V LOCK PULSE	External VD-Lock Pulse (EX.FV:Negative, 3 Vp-p 50 % duty)	
9	GND (VL PULSE)		

Connector : PG - FPC9SM - T (ELCO)



CN991 (IF-093 board)

Pin No.	Signal name
1	Y OUT
2	GND (for Y signal)
3	C OUT
4	GND (for C signal)

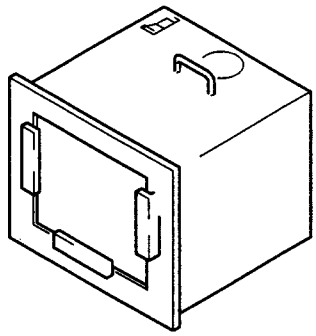
Section 2
Adjustments

2-1. Preparation

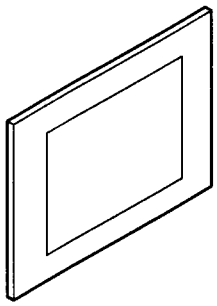
2-1-1. List of Service Tools

J-6029-140-B J-6431-850-A	Pattern Box PTB-500 Pattern Box PTB-700

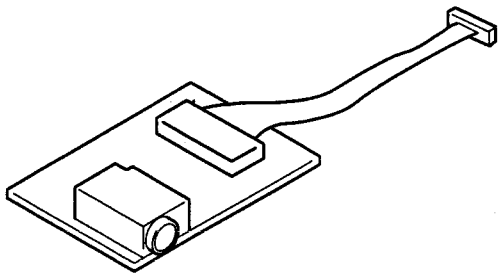
• **Light source for test chart**



J-6080-621-A	Clear Chart

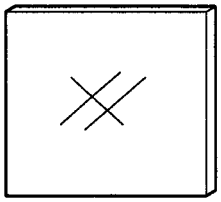


J-6431-930-A	Relay Tool for Adjustment Commander

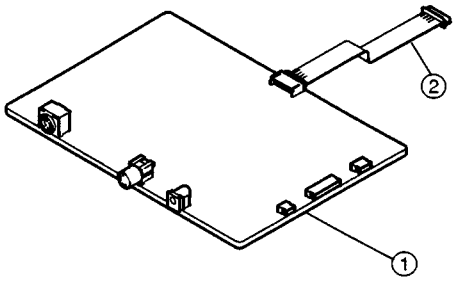


J-6080-808-A J-6080-818-A	ND Filter 1.0 ND Filter 0.3

• **White Balance Check**

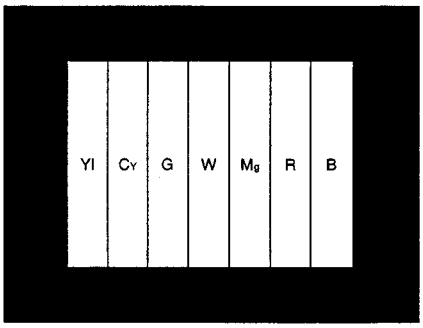


J-6432-430-A 1-782-728-11	① FCB Interface Tool Board ② Flexible Flat Cable 9P



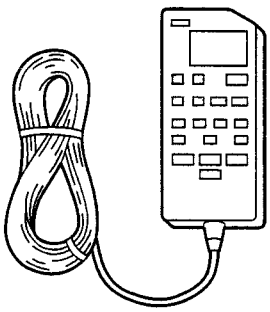
J-6020-250-A J-6027-100-A	Color Bar Chart (For PTB-500) Color Bar Chart (For PTB-700)

• **For color reproduction adjustment**



J-6082-053-B	Camera Adjustment Commander

• **RM-95 partly converted**

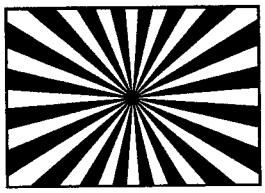


Note

If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

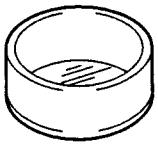
J-6080-875-A	Siemens star

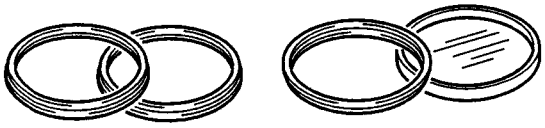
• **For checking the flange back**



J-6080-058-A	Color Temperature Correction Filter C14

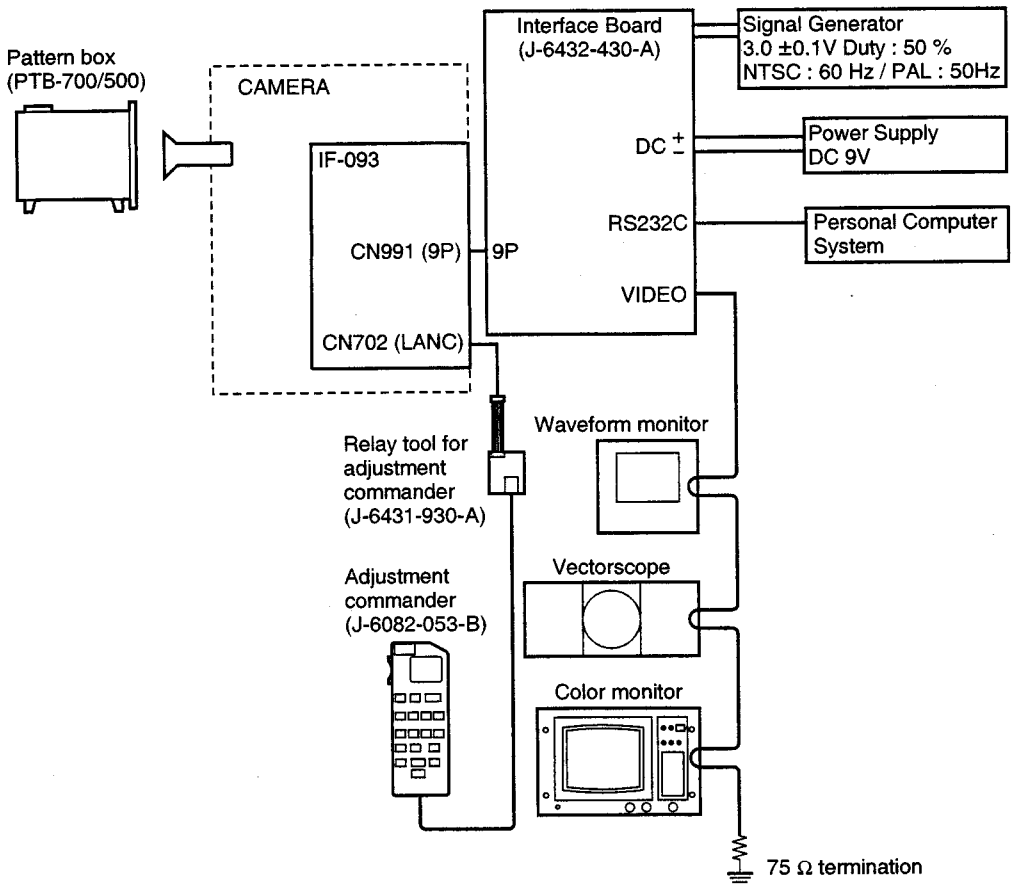
• **Auto white balance adjustment**
• **White balance check**





- Oscilloscope
- Frequency Counter
- Digital Voltmeter
- Vectorscope
- Waveform Monitor
- Color Monitor
- Control Software FCB-A Control Soft (J-6432-770-A)

2-1-2. Connection for Adjustment



2-1-3. Control Software Adjustment

The control system of the camera is adjusted using the software installed in a PC (personal computer).

Name of the software

FCB Control Soft

PC to use

The PC in which Microsoft Windows® NT3.5, 4.0 or Windows95/98® operates.

Installation

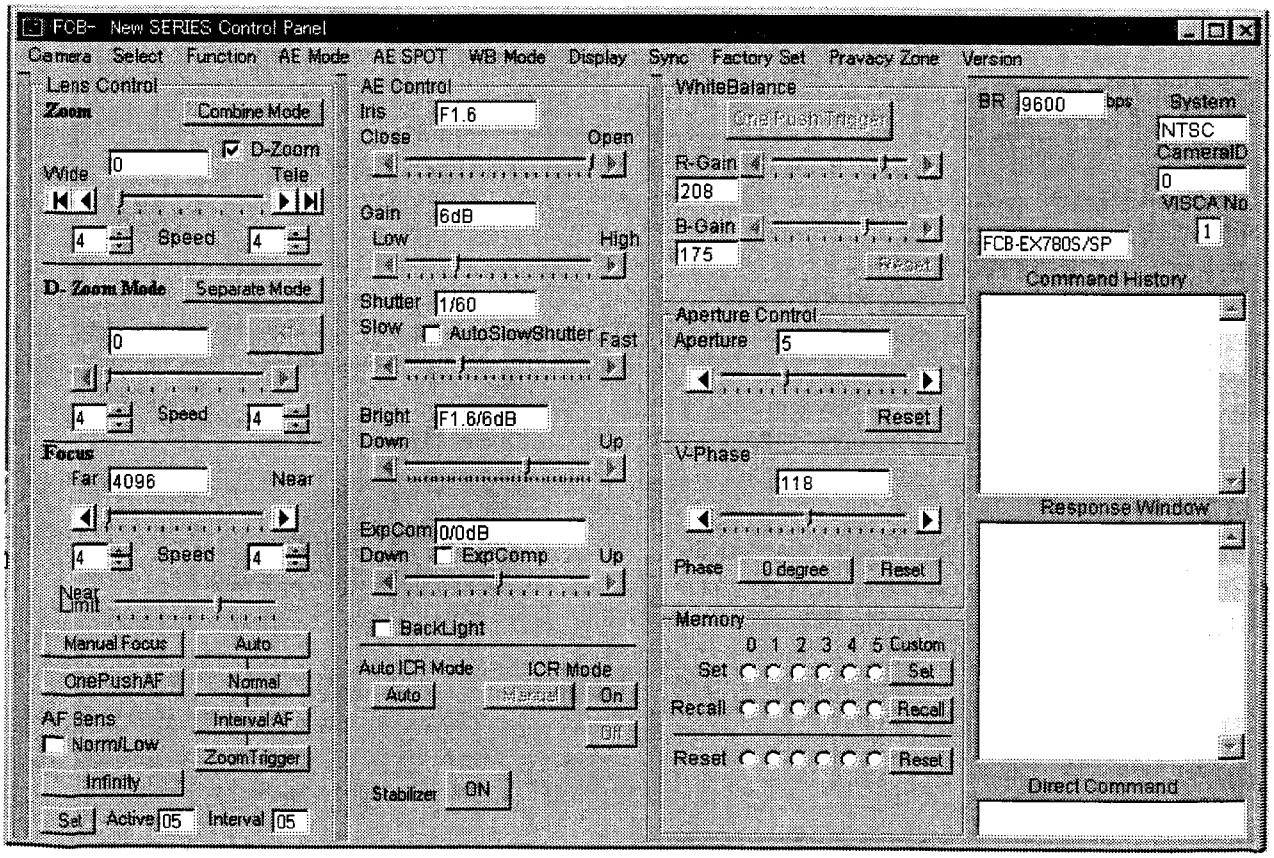
Double click "setup.exe" from the File manager (Explorer).

Operation

1. Turn on the power of the camera and start up Windows®.
2. Double click the FCB-New SERIES Control Panel icon.
3. Perform adjustment by dragging the adjustment slider of the respective adjustment using mouse. You can also perform adjustment by the arrow mark key when you click the adjustment slider with mouse.
4. Click the adjustment software using the finish button of the window.

Similarity models for FCB-New SERIES Control Panel

- FCB-EX780S/EX780SP
- FCB-EX480A/EX480AP
- FCB-EX48A/EX48AP
- FCB-EX45A/EX45AP



2-1-4. Precaution

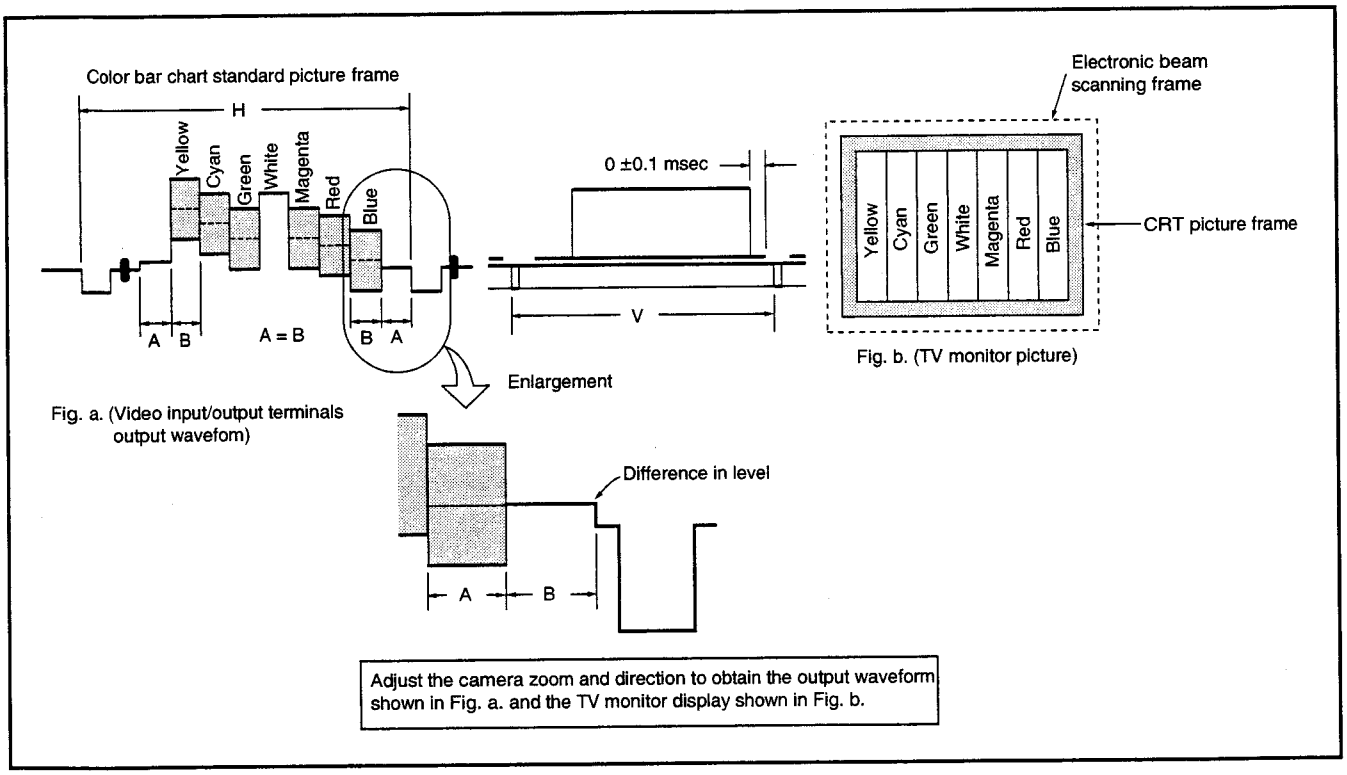
1. Setting the Switch

ZeroLuxShot box at AE Control screen of FCB

Control ..... No check required

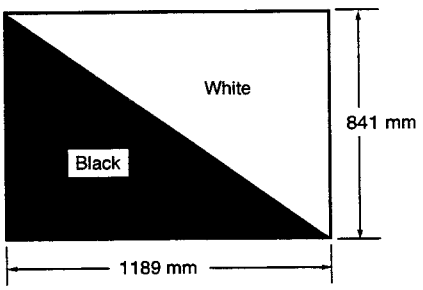
2. Adjusting Procedure

Adjust in the given order.



3. Subject

1) Color bar chart (Standard picture frame)
   Adjust the picture frame as shown in above figure if adjustments are performed using the color bar chart.
2) White pattern (Standard picture frame)
   Remove the color bar chart from the pattern box, and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Chart for flange back adjustment
   Combine a white A0 size (1189 mm × 841 mm) paper to a black one, and make the chart shown in right figure.



Note

Use the non-reflecting and non-glazing vellum paper whose size is more than A0, and make the boundary between white and black to be smoothly flat.

2-1-5. Adjusting Remote Commander

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit. The resultant data of this bi-directional communication is written in the non-volatile memory.

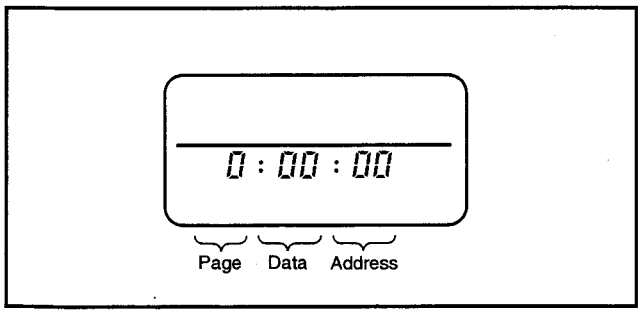
1. Using the adjusting remote commander

1) Connect the adjusting remote commander to the LANC terminal (IF-088 board CN703) with Relay Tool for Adjustment Commander.

Note

The Relay Tool will have pin ① coincide with pin ① of the CN703.

2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).
If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Figure.



3) Operate the adjusting remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH + button is pressed, and decreases when the EDIT SEARCH − button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d E F
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed.
     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (D, E, F, B, C page) in the non-volatile memory.
     (The new adjustment data will not be recorded in the non-volatile memory if this step is not performed.)

4) Select page: 0, address: 01, and set the data to 01, and enables Page D, E, F, B and C to be adjusted.
5) After completing all adjustments, set data: 00 to page: 0, address: 01 and turn off the main power supply once.

2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

2-1-6. Data Processing

The calculation of the DDS display and the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table indicates the hexadecimal notation-the decimal notation calculation table.

Hexadecimal notation-Decimal notation

The lower digits of the hexadecimal notation / The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d) ②	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① → B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note

( ) indicate the adjusting remote commander display.

(Example) In the case that the DDS display and the adjusting remote commander display are BD (bd).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

2-2. Initialization of D, E, F, B, C Page Data

1. Initializing the D, E, F, B, C Page Data

For camera micro processor: Page D, E, F
For VISCA micro processor: Page B, C

Notes

- If "Initializing the D, E, F, B, C Page Data" is performed, all data of the D page, E page, F page, B page and C page will be initialized. (It is impossible to initialize a single page.)
- If the D, E, F, B, C page data has been initialized, "Modification of D, E, F Page Data" and all adjustments need to be performed again.
- NTSC model : FCB-EX480A/EX48A/EX45A
  PAL model : FCB-EX480AP/EX48AP/EX45AP

Initializing Method

- Whole data writing in a camera micro processor

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 00, and set data: 55 (NTSC) or data: 51 (PAL). And select page: 6, address: 01 and set data: 55 (NTSC) or data: 51 (PAL).
3) When page: 6, address: 02 and data: 01 is indicated on the screen, data writing is completed.

- Whole data writing in a VISCA micro processor

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 00, and set data: 55 (NTSC) or data: 51 (PAL). And select page: 3, address: 01 and set data: 55 (NTSC) or data: 51 (PAL).
3) When page: 3, address: 02 and data: 01 is indicated on the screen, data writing is completed.

2. Modification of D, E, F, B, C Page Data

If the D, E, F, B, C page data has been initialized, change the data of the "*4" address shown in the following preset data tables by manual input.

Modifying Method

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination.
   When changing the data, copy the data built in the same model.

   Note

   If copy the data built in the different model, the camera may not operate.
3) When changing the data, press the PAUSE button of the adjusting remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the inital value.
5) After completing "Modification of D, E, F, B, C Page Data" select page: 0, address: 01, and set data: 00. Also perform all adjustments.

3. Preset data tables (NTSC)

Note

The following preset data describes based on the FCB-EX480A/EX480AP.

Page: F

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	FF*2	00	00	29	49*3	37*3	00*3	00	C7	88	30	80	67	F0	3B	10
x1	FF*2	00	20	0B	46*3	0D*3	00	00	78	70	87	10	4D	48	00	35
x2	FF*2	00	80	02	87*3	13*3	0A	00	00	00	96	10	33	00	E8	50
x3	FF*2	00	15	22	46*3	08*3	00	00	00	28	13	00	5C	22	90	71
x4	FF*2	00	1B	00	00*3	6E*3	83	00	00	1D	00	00	5C	B0*a	40	00
x5	FF*2	00	10	00	00*3	00*3	50	00	00	41	C3	00	5C	6C	40	07
x6	FF*2	00	06	00	03*4	19*3	77	00	00	90	D4	00	3C	88	0F	33
x7	FF*2	00	00	00	31	00*3	67*3	75	00	0A	FF	00	0F	FF*3	00	8F
x8	FF*2	00	04	4A*3	C8*4	19*3	60*3	30	00	10	0F	2B	10	F7*3	01	1C
x9	FF*2	00	40	60*3	2A	00*3	80	3C	00	50	15	80	19	13*3	78	F8
xA	FF*2	00	80	80*3	5D*4	00*3	00	40	40	57	06	5E	00	23*3	04	28
xB	FF*2	00	11	18	44*4	04*3	00	A6	2E	55	19	80	BC	00	4E	01
xC	FF*2	14	D0	74*3	22*4	00*3	00	68*3	85	00	80	68	D5	36	19	00
xD	FF*2	60*b	3C	6B*3	A0	00*3	00	80	50	30	80	26	C6	72	7A	F7
xE	FF*2	42	07	2E*3	2A	76*3	00	41	90	58	04	83	60	76	E0	00
xF	FF*2	80	00	6D*3	18	8C*3	00	33	A8	09	F7	A0	A5	D0	00	00

*1: Address and data are completed writing by the whole data setting
*2: Address that setting cannot change by reason on servicing
*3: Address that changes the data using camera adjustment
*4: Address that copies the data built in the different model

*a: FCB-EX48A/EX48AP → B0
FCB-EX45A/EX45AP → 70
*b: FCB-EX48A/EX48AP → 40
FCB-EX45A/EX45AP → 40

Page: E

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	3B	00	66	01	C7	2A	00	0A	00	00	33	F8	00	00	00
x1	40	43	00	84	20	43	E8	40	00	14	20	01	70	40	00	03*a
x2	00	AF	00	00	D2	AA	3F	87	77	10	40	00	E8	CA	80	02
x3	00	FF	00	00	26	65	0C	16	10	00	30	33	2C	55	00	45
x4	04	FF	00	B7	44	C2	41	00	6F	00	50	01	22	6C	00	00
x5	06	FF	00	30	BA	53	1F	0F	70	00	30	08	65	B8	00	00
x6	02	FF	80	0A	0F	90	42	00	00	00	4C	20	8C	A0	23	00
x7	00	FF	80	03	80	33	31	00	00	00	2C	CC	06	10	40	00
x8	07	1F	46	08	00	FF	FA	FF	10	00	30	40	05	80	00	04
x9	00	FF	2F	42	E6	05	11	00	20	01	00	1E	21	00	50	06
xA	07	80	3F	30	C0	3D	60	00	12	49	28	00	06	00	00	02
xB	00	96	2F	25*4	96	3D	C8	00	38	16	04	F4	11	00	00	00
xC	C3	47	FD*4	02	89	11	60	0A	FB	80	07	10	15	00	00	07
xD	2B	7D	00	5F	00	83	00	0A	F7	22	50	FC	71	00	00	00
xE	80	05	00	57	8C	FB	04	6B	B0	29	EB	04	80	00	00	07
xF	A7	02	00	1A	AF	F5	04	BC	11	02	00	FA	90	02	10	00

*1: Address and data are completed writing by the whole data setting
*2: Address that setting cannot change by reason on servicing
*3: Address that changes the data using camera adjustment
*4: Address that copies the data built in the different model

*a: FCB-EX48A/EX48AP → 03
FCB-EX45A/EX45AP → 07

Page: D

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	FF*2 *a	00	00	00	00	00	00	00	00	00	FE	01	0F	B0	04	20
x1	00*2	00	00	00	00	00	00	00	00	00	01	01	80	75	32	20
x2	FF*3	00	00	00	00	00	00	00	00	00	00	20	05	80	0C	50
x3	FF*3	01	00	00	00	00	00	00	00	00	00	00	5A	60	20	50
x4	FF*2	1A*b	00	00	00	00	00	00	00	00	00	00	05	00	00	01
x5	FF*2	00	00	00	00	00	00	00	00	00	00	00	05	00	00	00
x6	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	10
x7	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
x8	FF*2	12*c	00	00	00	00	00	00	00	00	00	00	00	00	00	00
x9	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xA	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xB	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xC	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xD	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xE	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xF	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

*1: Address and data are completed writing by the whole data setting
*2: Address that setting cannot change by reason on servicing
*3: Address that changes the data using camera adjustment
*4: Address that copies the data built in the different model

*a: FCB-EX48A/EX48AP → 04
FCB-EX45A/EX45AP → 06
*b: FCB-EX48A/EX48AP → 18
FCB-EX45A/EX45AP → 10
*c: FCB-EX48A/EX48AP → 14
FCB-EX45A/EX45AP → 16

Page: C

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	07
x1	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	02
x2	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00	01
x3	00	00	00	00	00	00	00	00	00	00	00	00	00	11	0A	07
x4	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0B
x5	00	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00
x6	00	00	00	00	00	00	00	00	00	00	00	00	00	00	36	02
x7	00	00	00	00	00	00	00	00	00	00	00	00	00	00	40	02
x8	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0B	80*3
x9	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1C	00
xA	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	AA
xB	00	00	00	00	00	00	00	00	00	00	00	00	00	00	05	00
xC	00	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00
xD	00	00	00	00	00	00	00	00	00	00	00	00	00	0A	00	00
xE	00	00	00	00	00	00	00	00	00	00	00	00	00	32	01	00
xF	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

*1: Address and data are completed writing by the whole data setting
*2: Address that setting cannot change by reason on servicing
*3: Address that changes the data using camera adjustment
*4: Address that copies the data built in the different model

Page: B

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x1	00	06	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x2	00	11	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x3	01	01	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x4	10	11	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x5	00	00	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x6	80	08	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x7	01	08	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x8	00	07	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
x9	05	05	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xA	05	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xB	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xC	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xD	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xE	FF	80	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xF	FF	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00

*1: Address and data are completed writing by the whole data setting
*2: Address that setting cannot change by reason on servicing
*3: Address that changes the data using camera adjustment
*4: Address that copies the data built in the different model

4. Preset data tables (PAL)

Page: F

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	FF*2	00	00	39	49*3	37*3	00	00	C7	88	30	80	67	F0	3B	10
x1	FF*2	00	20	0B	46*3	0D*3	00	00	78	70	87	28	4D	48	FA*4	35
x2	FF*2	00	80	02	87*3	13*3	0A	00	00	00	96	10	33	00	E8	50
x3	FF*2	00	15	51	46*3	08*3	00	00	00	28	13	00	5C	22	90	C6
x4	FF*2	00	1B	00	00*3	6E*3	83	00	00	1D	00	00	5C	D0*a	40	00
x5	FF*2	00	10	00	00*3	00*3	50	00	00	41	C3	00	5C	6C	40	07
x6	FF*2	00	06	00	03*4	19*3	77	00	00	88	D4	00	3C	88	0F	33
x7	FF*2	00	00	00	31*3	00*3	67	7C	00	0A	FF	00	0F	FF*3	00	8F
x8	FF*2	00	04	4A*3	C8*4	19*3	60	30	00	10	0F	2B	10	F7*3	01	1C
x9	FF*2	00	42	60*3	2A*3	00*3	80	45	00	50	15	80	19	13*3	78	F8
xA	FF*2	00	80	80*3	5D*4	00*3	00	40	40	57	06	5E	00	23*3	04	22
xB	FF*2	00	11	18	44*4	04*3	00	A6	2E	55	19	80	BC	00	49	01
xC	FF*2	15	D0	74*3	22*4	00*3	00	68*3	85	00	80	68	D5	36	19	00
xD	FF*2	60*b	3C	6B*3	A0*3	00*3	00	80	50	30	80	26	C6	72	7A	F7
xE	FF*2	42	07	2E*3	2A*3	76*3	00	41	90	58	04	83	60	76	ED	00
xF	FF*2	80	00	6D*3	18*3	8C*3	00	33	A8	09	F7	A0	A5	F0	00	00

*1: Address and data are completed writing by the whole data setting
*2: Address that setting cannot change by reason on servicing
*3: Address that changes the data using camera adjustment
*4: Address that copies the data built in the different model

*a: FCB-EX48A/EX48AP → D0
FCB-EX45A/EX45AP → F0
*b: FCB-EX48A/EX48AP → 40
FCB-EX45A/EX45AP → 40

Page: E

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	3B	00	66	01	C7	2A	00	0A	00	00	33	F8	00	00	00
x1	40	43	00	84	20	44	E8	40	00	14	00	02	70	40	00	03*a
x2	00	AF	00	00	D2	AA	3F	77	77	10	40	00	E8	0A	80	03
x3	00	FF	00	00	26	65	0C	16	10	00	20	33	2C	55	00	45
x4	04	FF	00	B7	44	C2	41	00	6F	00	50	02	22	6C	00	00
x5	06	FF	00	30	BA	53	1F	0F	70	00	30	08	75	A5	00	00
x6	02	FF	80	0A	0F	90	42	00	00	00	4B	20	8C	A0	23	00
x7	00	FF	80	03	80	33	31	00	00	00	3B	20	00	10	40	00
x8	07	1F	66	08	00	FF	FA	FF	10	00	2A	40	01	80	00	04
x9	00	FF	2F	42	E6	04	11	00	20	01	00	1E	10	00	50	06
xA	07	80	3F	30	C0	3D	60	00	12	49	25	00	03	00	00	02
xB	00	96	2F	25*4	96	3D	C8	00	38	16	04	F4	10	00	00	00
xC	C3	47	FD*4	02	89	11	60	0A	EB	80	08	10	32	00	00	07
xD	2B	7D	00	5F	00	83	00	0A	F7	22	22	00	40	00	00	00
xE	80	05	00	57	8C	FB	04	5A	B0	29	EB	08	80	00	08	07
xF	A7	02	00	1A	AF	F5	04	BC	11	02	00	FA	90	02	10	00

*1: Address and data are completed writing by the whole data setting
*2: Address that setting cannot change by reason on servicing
*3: Address that changes the data using camera adjustment
*4: Address that copies the data built in the different model

*a: FCB-EX48A/EX48AP → 03
FCB-EX45A/EX45AP → 0A

Page: D

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	03*2	00	00	00	00	00	00	00	00	00	FE	01	0F	B0	04	20
x1	00*2	00	00	00	00	00	00	00	00	00	01	01	80	75	32	20
x2	FF*3	00	00	00	00	00	00	00	00	00	00	20	05	C0	0C	50
x3	FF*3	00	00	00	00	00	00	00	00	00	00	00	5A	60	20	64
x4	FF*2	1A*b	00	00	00	00	00	00	00	00	00	00	05	00	00	01
x5	FF*2	00	00	00	00	00	00	00	00	00	00	00	05	00	00	00
x6	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	10
x7	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
x8	FF*2	13*c	00	00	00	00	00	00	00	00	00	00	00	00	00	00
x9	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xA	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xB	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xC	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xD	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xE	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xF	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

*1: Address and data are completed writing by the whole data setting
*2: Address that setting cannot change by reason on servicing
*3: Address that changes the data using camera adjustment
*4: Address that copies the data built in the different model

*a: FCB-EX48A/EX48AP → 05
FCB-EX45A/EX45AP → 07
*b: FCB-EX48A/EX48AP → 18
FCB-EX45A/EX45AP → 10
*c: FCB-EX48A/EX48AP → 15
FCB-EX45A/EX45AP → 17

Page: C

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	09
x1	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	02
x2	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00	03
x3	00	00	00	00	00	00	00	00	00	00	00	00	00	11	0A	07
x4	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0B
x5	00	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00
x6	00	00	00	00	00	00	00	00	00	00	00	00	00	00	36	02
x7	00	00	00	00	00	00	00	00	00	00	00	00	00	00	40	02
x8	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1A	80*3
x9	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1C	00
xA	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	AA
xB	00	00	00	00	00	00	00	00	00	00	00	00	00	00	05	00
xC	00	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00
xD	00	00	00	00	00	00	00	00	00	00	00	00	00	0A	00	00
xE	00	00	00	00	00	00	00	00	00	00	00	00	00	32	01	00
xF	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

*1: Address and data are completed writing by the whole data setting
*2: Address that setting cannot change by reason on servicing
*3: Address that changes the data using camera adjustment
*4: Address that copies the data built in the different model

Page: B

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x1	00	06	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x2	00	11	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x3	01	01	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x4	10	11	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x5	00	00	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x6	80	08	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x7	01	08	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x8	00	07	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
x9	05	05	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xA	05	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xB	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xC	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xD	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xE	FF	80	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xF	FF	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00

*1: Address and data are completed writing by the whole data setting
*2: Address that setting cannot change by reason on servicing
*3: Address that changes the data using camera adjustment
*4: Address that copies the data built in the different model

2-3. Camera Adjustments

1. 28 MHz Origin Oscillation Adjustment (VC-285 board)

Set the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Subject	Not required
Measurement Point	Pin ⑤ of IC101
Measuring Instrument	Frequency counter and Adjusting remote commander
Adjustment Page	F
Adjustment Address	4D
Specified Value	Pin ⑤ of IC101 : f = 14.318181 MHz ± 68 Hz (NTSC) f = 14.187500 MHz ± 68 Hz (PAL)

Note

- NTSC model : FCB-EX480A/EX48A/EX45A
  PAL model : FCB-EX480AP/EX48AP/EX45AP

Adjusting method

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 4D, change the data and set the clock frequency (f) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.

2. SYNC Level Adjustment (IF-093 board)

Set the Y signal output level.

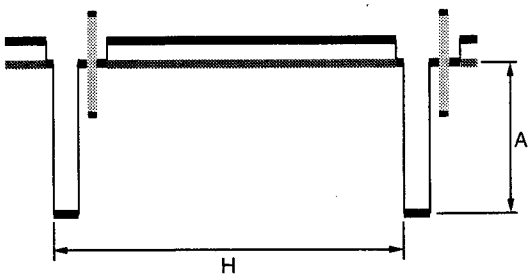
Subject	All black
Measurement Point	Pin ⑥ of CN992
Measuring Instrument	Oscilloscope and Adjusting remote commander
Adjustment Page	F
Adjustment Address	67
Specified Value	A = 285 ± 5 mV (NTSC) A = 300 ± 5 mV (PAL)

Notes

- Terminate at 75 Ω resistor and measure.
- NTSC model : FCB-EX480A/EX48A/EX45A
  PAL model : FCB-EX480AP/EX48AP/EX45AP

Adjusting method

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 67, change the data and set the SYNC level (A) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.



3. BURST Level Adjustment (IF-093 board)

Set the chroma signal output level.

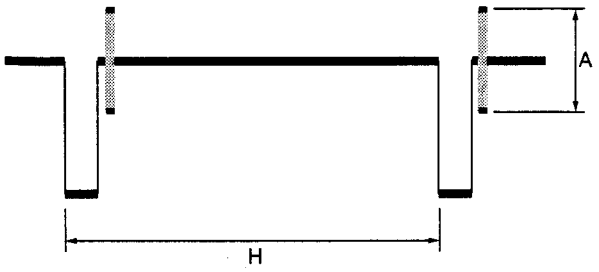
Subject	All black
Measurement Point	Pin ⑥ of CN992
Measuring Instrument	Oscilloscope and Adjusting remote commander
Adjustment Page	F
Adjustment Address	68
Specified Value	A = 285 ± 5 mV (NTSC) A = 300 ± 5 mV (PAL)

Notes

- Terminate at 75 Ω resistor and measure.
- NTSC model : FCB-EX480A/EX48A/EX45A
  PAL model : FCB-EX480AP/EX48AP/EX45AP

Adjusting method

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 68, change the data and set the burst level (A) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.



4. HALL Adjustment

For detecting the position of the lens iris, adjust the hall AMP gain and offset. If deviated, iris may occurs oscillation or white balance of indoors or outdoors may improper operation.

Subject	Not required
Measurement Point	HALL DATA (Page: 1)
Measuring Instrument	Display data of the charactor generator on the adjusting remote commander
Adjustment Page	F
Adjustment Address	38, 39, 3A
Specified Value	When select page: 6, address: 01 and set data: 01, display data at page:1 is specified within 80 ±02h. When select page: 6, address: 01 and set data: 03, display data at page:1 is specified within 16 ±02h.

Adjusting Method

1) Select page: 6, address: 94, and set data: 80.
2) Select page: 6, address: 95, and set data: 16.
3) Select page: 6, address: 01, and set data: 6D.
4) Consequently, page: 6, address: 02 and data: 01 is indicated on the screen, adjustment is finished.
5) Select page: 6, address: 01, and set data: 00.

Checking Method

1) Select page: 0, address: 03 and set data: 03, and indicates the HALL DATA at page: 1 on the screen.
2) Select page: 6, address: 01 and set data: 01, check the data at page: 1 to the specified value.
3) Select page: 6, address: 01 and set data: 03, check the data at page: 1 to the specified value.

Processing after Completing Adjustments

1) Select page: 6, address: 94 and set data: 00, press the PAUSE button of the adjusting remote commander.
2) Select page: 6, address: 95 and set data: 00, press the PAUSE button of the adjusting remote commander.
3) Select page: 0, address: 03 and set data: 00.
4) Select page: 6, address: 01 and set data: 00.

5. Flange Back Adjustment

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Note

Before adjustment, make sure that confirm the following item.

1. ICR: OFF

Subject	Flange back adjustment chart (2.0 m from the front of the lens) Note: For luminance, refer to the Note*1) shown in below.
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3E to 5D, 61

Adjusting method

1) Check that at both the zoom lens TELE end and WIDE end, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
2) Select page: 0, address: 01, and set data: 01.
3) Shoot the chart.
4) Select page: 6, address: 01 and set data: 13.
5) Select page: 6, address: 01 and set data: 15.
6) Consequently, page: 6, address: 02 and data: 01 is indicated on the screen, adjustment is completed.

Notes

*1) • Surface luminance of the chart
For adjustment performs correctly, surface luminance setting is required consider that difference of F value CCD sensitivity for the lens and shatter speed between NTSC and PAL.
The surface luminance setting is set to page: 6, address: 01 and data: 13 at the zoom lens TELE end using the PAL models. Consequently, luminance is set to which obtain more than 30 IRE standard value not too dark on the screen.
• The adjustment data will be automatically input to page: F, addresses: 4E to 5D and 61.

Processing after Completing Adjustments

1) Turn off the power and then on the power again.
2) Perform the initializing of the focus zoom again. It is also required that release of the write protection during turn on the power.

6. Picture Frame Setting

Notes

Before adjustment, make sure that confirm the following items.

1. Perform "Flange Back Adjustment" before this adjustment.
2. Digital Zoom: OFF, Camera stabilizer: OFF, ICR: OFF

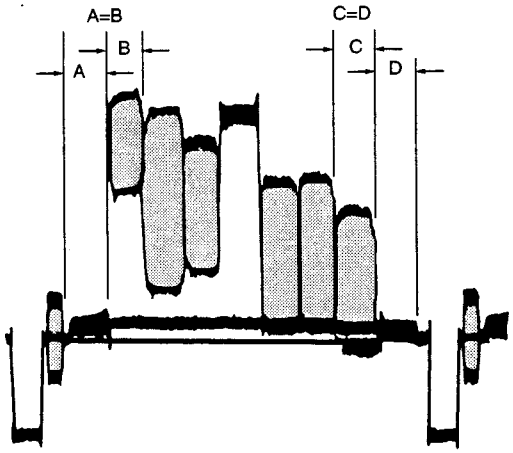
Subject	Color bar chart standard picture frame (1.5 m from the front of the lens)
Measurement Point	Pin ⑥ of CN992
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A = B, C = D, t = 0 ± 0.1 msec

Setting method

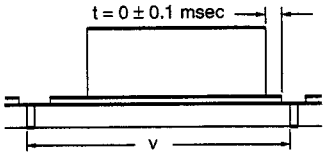
1) Adjust the zoom and the camera direction, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color bar chart standard picture frame".

Check operation on the oscilloscope

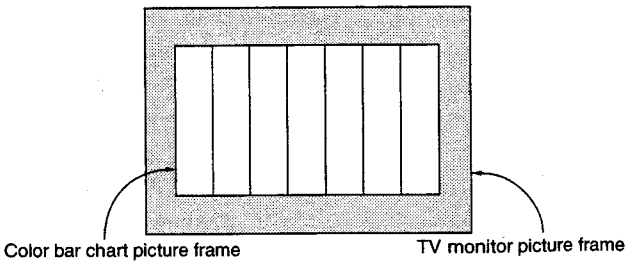
1.Horizontal period



2.Vertical period



Check operation on the TV monitor (under scan mode)



7. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that proper color reproduction is produced. If deviated, improper color reproduction will be produced.

Note

Before adjustment, make sure that confirm the following items.

1. Digital Zoom: OFF, Camera stabilizer: OFF, ICR: OFF

Subject	Color bar chart standard picture frame
Measurement Point	Pin ⑥ of CN992
Measuring Instrument	Vectorscope and Adjusting remote commander
Adjustment Page	F
Adjustment Address	47, 49, D7 to D9, DA: page F 02, 03: page D
Specified Value	All color luminance points should settle within each color reproduction frame. (Last page of this manual)

Note

NTSC model : FCB-EX480A/EX48A/EX45A
PAL model : FCB-EX480AP/EX48AP/EX45AP

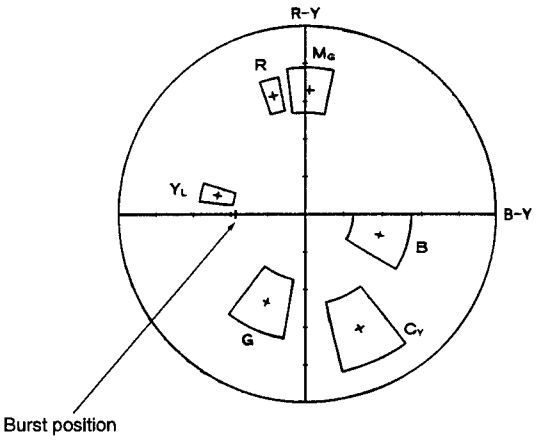
Adjusting method

1) Select page: 0, address: 01 and set data: 01.
2) Select page: 0, address: 01 and set data: 80.
3) Select page: F, address: 8B and set data: 29. (In this case, original data should be memorized)
4) Select page: 6, address: 01 and set data: 3D, select page: F, address: 2B and set data: 17 (NTSC) or data: 97 (PAL). (Two variable number adjustment mode)
5) Operates page: F, addresses: 47, 49, D7 and D8, adjust so that luminance points are specified on the vectorscope.
6) Set the data that memorized in above item 1) to page: F and address: 8B.
7) Copy the data of page: F, addresses: D9 and DA that read out from different model.
8) Write the data that is equal to the data of page: F and address: D9, to page: D and address: 02. Also, write the data that is equal to the data of page: F and address: DA, to page: D and address: 03.

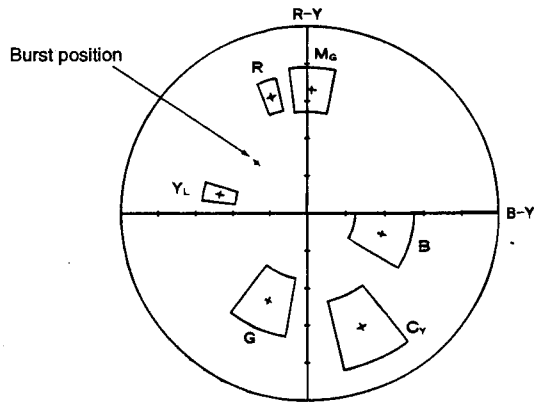
Processing after Completing Adjustments

1) Select page: 6, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.

For NTSC model



For PAL model



8. AWB & LV Standard Data Input

Notes

Before adjustment, make sure that confirm the following items.

1. Perform "Color Reproduction Adjustment" before this adjustment
2. Check that the data of page: 6 and address: 02 is 00. (Completed Flag)
3. Digital Zoom: OFF, Camera stabilizer: OFF, ICR: OFF

Subject	Clear chart (Shoot in color bar standard picture frame)
Adjustment Page	F
Adjustment Address	3C to 41

Adjusting method

1) Select page: 0, address: 01 and set data: 01.
2) Shoot the clear chart in the color bar standard picture frame.
3) Select page: 6, address: 16 and set data: 02.
4) Wait until AWB data is stabilized by passed over 2 seconds after setting it.
5) Select page: 6, address: 01 and set data: 11, and select page: 6, address: 01 and set data: 0D in order.
6) Consequently, page: 6, address: 02 and data: 01 is indicated on the screen, data input is completed.

Processing after Completing Adjustments

1) Select page: 6, address: 01 and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 6, address: 16 and set data: 00, and press the PAUSE button of the adjusting remote commander
3) Select page: 0, address: 01 and set data: 00,

Notes

- The adjustment data will be automatically input to page: F, addresses: 3C to 41.
- AWB & LV standard data input is possible during turn on the power at only once.

9. AWB (Auto White Balance) Adjustment

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Notes

Before adjustment, make sure that confirm the following items.

1. Perform "AWB & LV Standard Data Input" before this adjustment.
2. Digital Zoom: OFF, Camera stabilizer: OFF, ICR: OFF

Subject	Clear chart (Shoot in color bar standard picture frame)
Filter	Filter C14 for color temperature correction
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	42, 43, B8 to BB
Specified Value	R ratio: 2C80 ±40h B ratio: 5E80 ±60h

Adjusting method

1) Place the C14 filter for color temperature correction on the lens.
2) Select page: F, addresses: B8 to BB and set the correlation data (shown below) for using of C14 filter. Then, the data before input must be memorized.
   Select page: F, address: B8 and set the upper bite data that objective value of R ratio.
   Select page: F, address: B9 and set the lower bite data that objective value of R ratio.
   Select page: F, address: BA and set the upper bite data that objective value of B ratio.
   Select page: F, address: BB and set the lower bite data that objective value of B ratio.
3) Select page: 6, address: 01 and set data: A7, and select page: 6, address: 01 and set data: A5 in order.
4) Consequently, page: 6, address: 02 and data: 01 is indicated on the screen, data input is completed.
5) Select page: 6, address: 01 and set data: 3F.
6) Select page: 0, address: 03 and set data: 04, then R ratio data makes display on the screen at page: 1.
7) Check that R ratio data is within specified value.
8) Select page: 0, address: 03 and set data: 05, then B ratio data makes display on the screen at page: 1.
9) Check that B ratio data is within specified value.
10) Set the memorized original data as described in item 2) to page: F and addresses: B8 to BB.

Processing after Completing Adjustments

1) Select page: 6, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 03, and set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: 0, address: 01, and set data: 00.

Notes

- The adjustment data will be automatically input to page: F, addresses: 42 and 43.
- Data input of this unit is possible during turn on the power at only once.

10. White Balance Check

Subject	Clear chart (Color bar standard picture frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	Pin ⑥ of CN992
Measuring Instrument	Vectorscope
Specified Value	Figure A to C

Checking method

1) Check that the lens is not covered with either filter.
2) Select page: 2, address: 01, set data: 0F, and press the PAUSE button of the adjusting remote commander.
3) Check that the center of the white luminance point is within the circle shown Figure A.
4) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Select page: 2, address: 01, set data: 23, and press the PAUSE button of the adjusting remote commander.
6) Place the C14 filter on the lens.
7) Check that the center of the white luminance point settles in the circle shown Figure B.
8) Remove the C14 filter, and place the ND filter 1.3 (1.0 + 0.3) on the lens.
9) Check that the white luminance point stopped moving, and then remove the ND filter 1.3.
10) Check that the center of the white luminance point settles within the circle shown Figure C.

Processing after Completing Adjustments

1) Select page: 2, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.

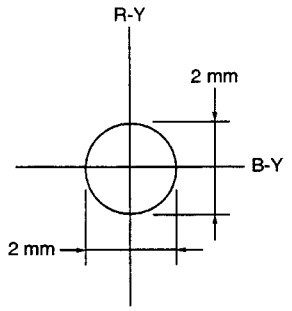


Figure A

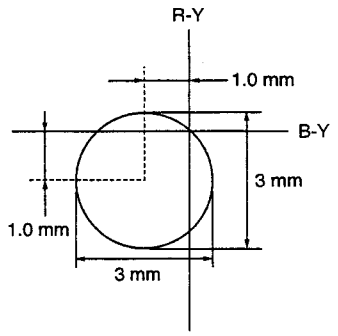


Figure B

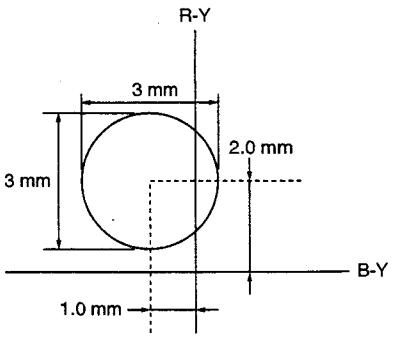


Figure C

11. External SYNC PHASE Clock Adjustment

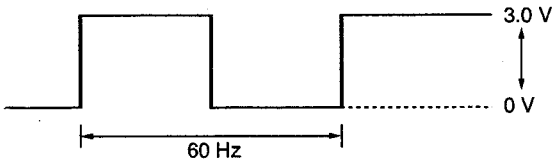
Input the SYNC pulse and set the voltage of external SYNC PLL.

Subject	Not required
Measurement Point	Display data of page: 6, address : 04
Measuring Instrument	of the adjusting remote commander
Adjustment Page	F
Adjustment Address	7C
Specified Value	Display data of page: 6, Address : 04 is 80 ±05h.

Adjusting method

1) Click Sync menu on the FCB Control Panel screen and select V-Lock to set the external SYNC mode, and input the external SYNC pulse to pin 8 of CN 992 on the IF-093 board.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: F, address: 7C, change the data and set the data of page: 6, address: 04 to the specified value.
4) Press the PHASE button of the adjusting remote commander.
5) Select page: 0, address: 01, and set data: 00.

<SYNC pulse>



50 % duty

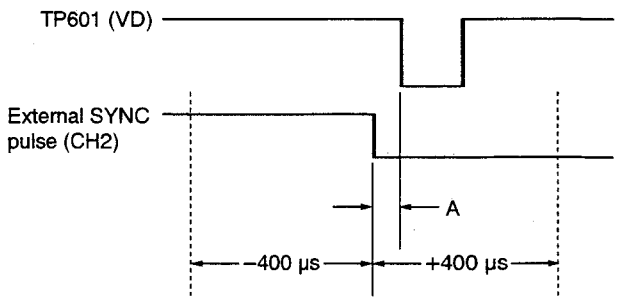
12. SYNC PHASE Adjustment (VC-285 board)

External SYNC pulse and set the PHASE of VD pulse.

Subject	All black
Measurement Point	TP601 (CH1), external SYNC pulse (CH2)
Measuring Instrument	Oscilloscope and Adjusting remote commander
Adjustment Page	D
Adjustment Address	F8
Specified Value	A = 0 ±400 µs

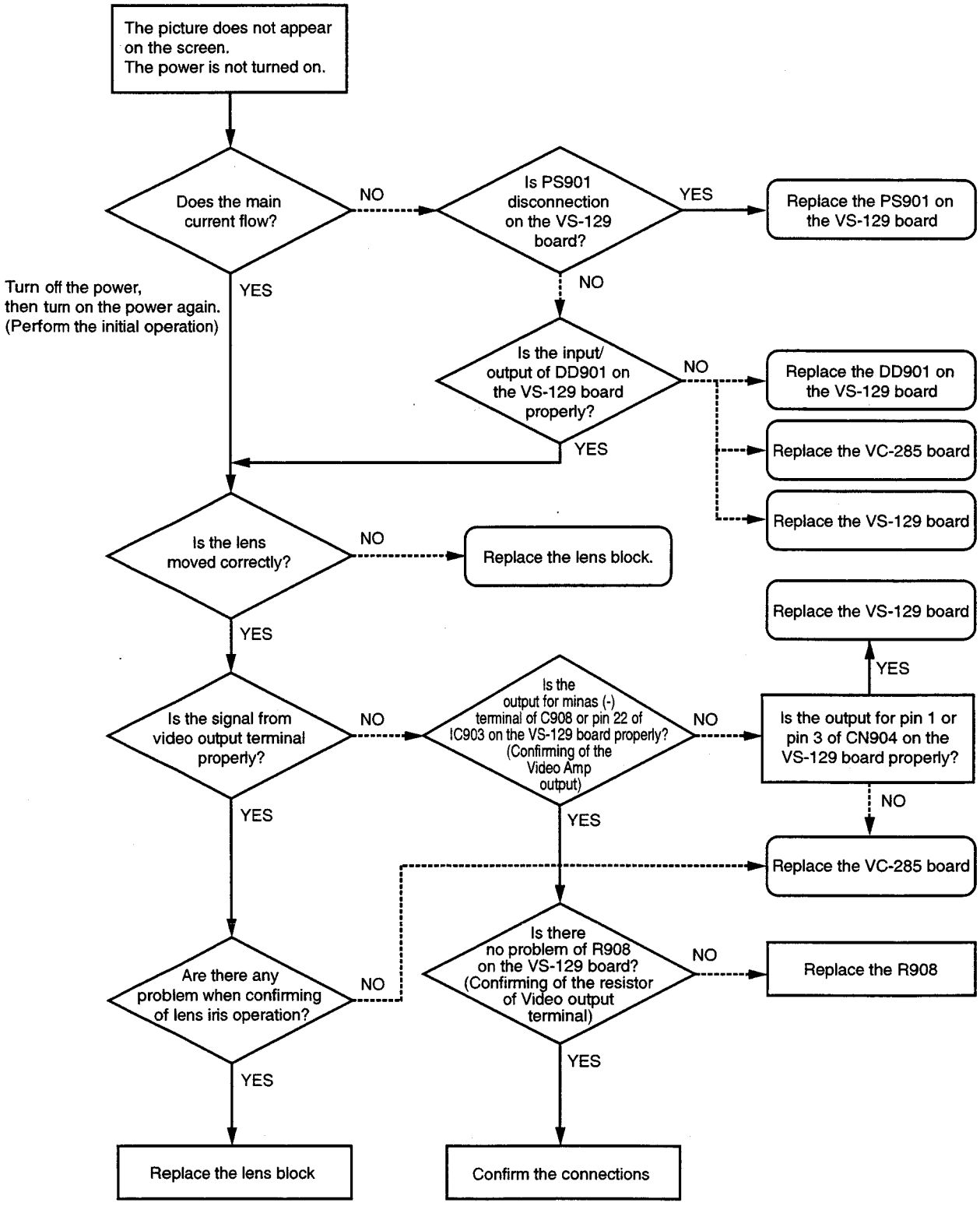
Adjusting method

1) Click Sync menu on the FCB Control Panel screen and select V-Lock to set the external SYNC mode, and input the external SYNC pulse to pin 8 of CN 901.
2) External SYNC phase automatically adjustment
   1. Select page: 3, address: F4 and set data: 01.
   2. Check that the data of page: 3 and address: F0 is 01. (Check that the external SYNC phase tracking)
   3. Select page: 3, address: 01 and set data: 11.
   4. When page: 3, address: 02 and data: 01 is indicated on the screen, adjustment is completed.
   5. Select page: 3, address: 01 and set data: 00.
3) Check the external SYNC phase tracking at 0 °C
   Check that the data of page: 3 and address: F2 is within 00 (H) ±03 (H).
4) Check the external SYNC phase tracking at 180°C
   1. Select page: 3, address: F4 and set data: 03.
   2. Check that the data of page: 3 and address: F2 is within 00 (H) ±03 (H).

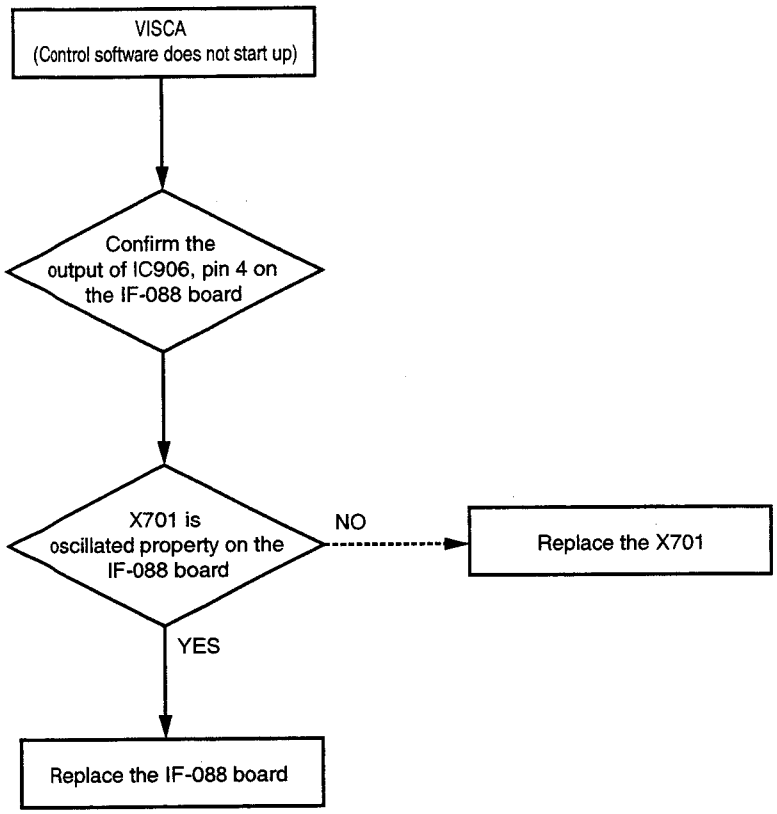


Section 3
Troubleshooting

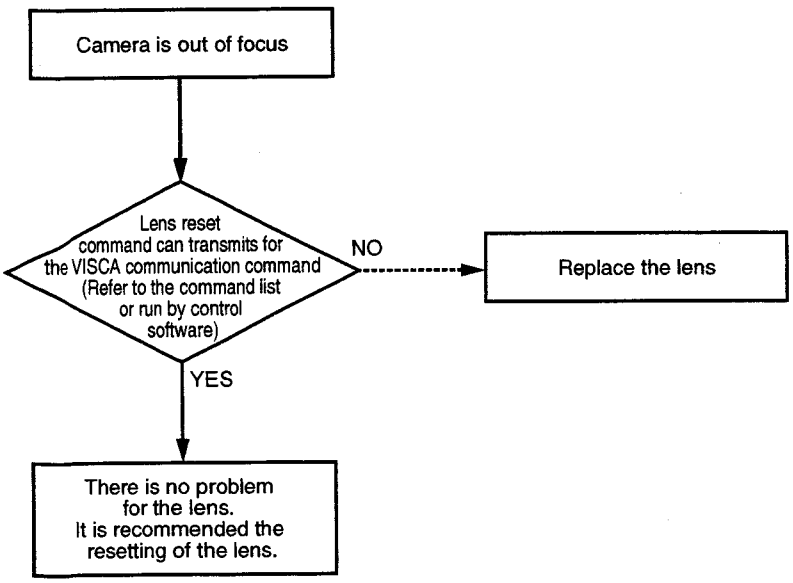
3-1. Image Troubleshooting


The picture does not appear on the screen.
The power is not turned on.
Does the main current flow?
NO
Is PS901 disconnection on the VS-129 board?
YES
Replace the PS901 on the VS-129 board
Turn off the power, then turn on the power again. (Perform the initial operation)
YES
NO
Is the input/ output of DD901 on the VS-129 board properly?
NO
Replace the DD901 on the VS-129 board
Replace the VC-285 board
Replace the VS-129 board
YES
Is the lens moved correctly?
NO
Replace the lens block.
YES
Replace the VS-129 board
YES
Is the signal from video output terminal properly?
NO
Is the output for minas (-) terminal of C908 or pin 22 of IC903 on the VS-129 board properly? (Confirming of the Video Amp output)
NO
Is the output for pin 1 or pin 3 of CN904 on the VS-129 board properly?
YES
NO
YES
Replace the VC-285 board
Are there any problem when confirming of lens iris operation?
NO
Is there no problem of R908 on the VS-129 board? (Confirming of the resistor of Video output terminal)
NO
Replace the R908
YES
YES
Replace the lens block
Confirm the connections

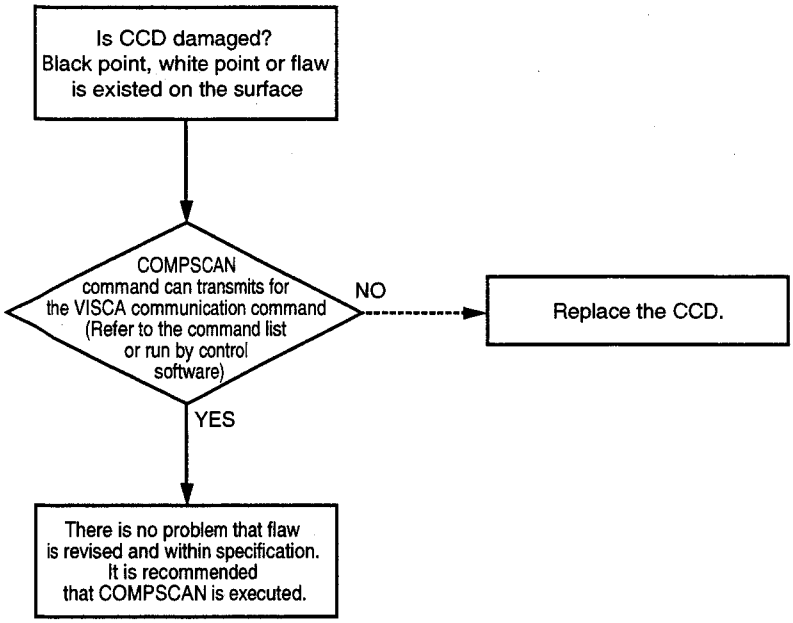
3-2. Communication Troubleshooting


VISCA
(Control software does not start up)
Confirm the output of IC906, pin 4 on the IF-088 board
X701 is oscillated property on the IF-088 board
NO
Replace the X701
YES
Replace the IF-088 board

3-3. Focus Troubleshooting


Camera is out of focus
Lens reset command can transmits for the VISCA communication command (Refer to the command list or run by control software)
NO
Replace the lens
YES
There is no problem for the lens.
It is recommended the resetting of the lens.

3-4. CCD Troubleshooting


Is CCD damaged?
Black point, white point or flaw is existed on the surface
COMPSCAN command can transmits for the VISCA communication command (Refer to the command list or run by control software)
NO
Replace the CCD.
YES
There is no problem that flaw is revised and within specification. It is recommended that COMPSCAN is executed.

Section 4
Command List

4-1. FCB Command List

Command Set	Command	Command Packet	Comments
AddessSet	Broadcast	88 30 01 FF	Address setting
IF_Clear	Broadcast	88 01 00 01 FF	I/F clear
CommandCancel		8x 2p FF	p: Socket No. (=1 or 2)
CAM_Power	On	8x 01 04 00 02 FF	Power ON/OFF
	Off	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	
	Tele (Standard)	8x 01 04 07 02 FF	
	Wide (Standard)	8x 01 04 07 03 FF	
	Tele (Variable)	8x 01 04 07 2p FF	p=0 (low speed) to 7 (high speed)
	Wide (Variable)	8x 01 04 07 3p FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_DZoom	On	8x 01 04 06 02 FF	Digital zoom ON/OFF
	Off	8x 01 04 06 03 FF	
	Combine Mode	8x 01 04 36 00 FF	Optical/Digital Zoom mixed
	Separate Mode	8x 01 04 36 01 FF	Optical/Digital Zoom separately
	Stop	8x 01 04 06 00 FF	
	Tele (Variable)	8x 01 04 06 2p FF	p=0 (low speed) to 7 (high speed)
	Wide (Variable)	8x 01 04 06 3p FF	
	x1/Max	8x 01 04 06 10 FF	x1/MAX magnification selection
	Direct	8x 01 04 46 0p 0q 0r 0s FF	pqrs: D-Zoom Position
CAM_Focus	Stop	8x 01 04 08 00 FF	
	Far (Standard)	8x 01 04 08 02 FF	
	Near (Standard)	8x 01 04 08 03 FF	
	Far (Variable)	8x 01 04 08 2p FF	p=0 (low speed) to 7 (high speed)
	Near (Variable)	8x 01 04 08 3p FF	
	Direct	8x 01 04 48 0p 0q 0r 0s FF	pqrs: Focus Position
	Auto Focus	8x 01 04 38 02 FF	AF ON/OFF
	Manual Focus	8x 01 04 38 03 FF	
	Auto/Manual	8x 01 04 38 10 FF	
	One Push Trigger	8x 01 04 18 01 FF	One push AF trigger
	Infinity	8x 01 04 18 02 FF	Forced infinity
	Near Limit	8x 01 04 28 0p 0q 0r 0s FF	pqrs: Focus Near Limit Position
AF Sensitivity	Normal	8x 01 04 58 02 FF	AF sensitivity selection
	Low	8x 01 04 58 03 FF	
CAM_AFMode	Normal AF	8x 01 04 57 00 FF	AF operation mode
	Interval AF	8x 01 04 57 01 FF	
	Zoom Trigger AF	8x 01 04 57 02 FF	
	Active/Interval Time	8x 01 04 27 0p 0q 0r 0s FF	pq: Operation time, rs: Interval

Command Set	Command	Command Packet	Comments
CAM_ZoomFocus	Direct	8x 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	pqrs: Zoom Position tuvw: Focus Position
CAM_Initialize	Lens	8x 01 04 19 01 FF	Lens initializes start up
	Comp Scan	8x 01 04 19 02 FF	Defective compensation operating start up
CAM_WB	Auto	8x 01 04 35 00 FF	Normal Auto
	Indoor	8x 01 04 35 01 FF	Indoor mode
	Outdoor	8x 01 04 35 02 FF	Outdoor mode
	One Push WB	8x 01 04 35 03 FF	One push WB mode
	ATW	8x 01 04 35 04 FF	Auto tracking white balance
	Manual	8x 01 04 35 05 FF	Manual control mode
	One Push Trigger	8x 01 04 10 05 FF	One push WB trigger
CAM_RGain	Reset	8x 01 04 03 00 FF	Manual control of R gain
	Up	8x 01 04 03 02 FF	
	Down	8x 01 04 03 03 FF	
	Direct	8x 01 04 43 00 00 0p 0q FF	pq: R Gain
CAM_BGain	Reset	8x 01 04 04 00 FF	Manual control of B gain
	Up	8x 01 04 04 02 FF	
	Down	8x 01 04 04 03 FF	
	Direct	8x 01 04 44 00 00 0p 0q FF	pq: B Gain
CAM_AE	Full Auto	8x 01 04 39 00 FF	Automatic exposure mode
	Manual	8x 01 04 39 03 FF	Manual control mode
	Shutter Priority	8x 01 04 39 0A FF	Shutter priority automatic exposure mode
	Iris Priority	8x 01 04 39 0B FF	Iris priority automatic exposure mode
	Bright	8x 01 04 39 0D FF	Bright mode (Manual control)
CAM_SlowShutter	Auto	8x 01 04 5A 02 FF	Slow shutter Auto/Manual
	Manual	8x 01 04 5A 03 FF	
CAM_Shutter	Reset	8x 01 04 0A 00 FF	Shutter setting
	Up	8x 01 04 0A 02 FF	
	Down	8x 01 04 0A 03 FF	
	Direct	8x 01 04 4A 00 00 0p 0q FF	pq: Shutter Position
CAM_Iris	Reset	8x 01 04 0B 00 FF	Iris setting
	Up	8x 01 04 0B 02 FF	
	Down	8x 01 04 0B 03 FF	
	Direct	8x 01 04 4B 00 00 0p 0q FF	pq: Iris Position
CAM_Gain	Reset	8x 01 04 0C 00 FF	Gain setting
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 4C 00 00 0p 0q FF	pq: Gain Position
CAM_Bright	Reset	8x 01 04 0D 00 FF	Bright setting
	Up	8x 01 04 0D 02 FF	
	Down	8x 01 04 0D 03 FF	
	Direct	8x 01 04 4D 00 00 0p 0q FF	pq: Bright Position

Command Set	Command	Command Packet	Comments
CAM_ExpComp	On	8x 01 04 3E 02 FF	Exposure compensation ON/OFF
	Off	8x 01 04 3E 03 FF	
	Reset	8x 01 04 0E 00 FF	Exposure compensation amount setting
	Up	8x 01 04 0E 02 FF	
	Down	8x 01 04 0E 03 FF	
	Direct	8x 01 04 4E 00 00 0p 0q FF	pq: ExpComp Position
CAM_BackLight	On	8x 01 04 33 02 FF	Back light compensation ON/OFF
	Off	8x 01 04 33 03 FF	
CAM_SpotAE	On	8x 01 04 59 02 FF	Spot AE setting
	Off	8x 01 04 59 03 FF	
	Position	8x 01 04 29 0p 0q 0r 0s FF	pq: X (0 to F), rs: Y (0 to F)
CAM_Aperture	Reset	8x 01 04 02 00 FF	Aperture control setting
	Up	8x 01 04 02 02 FF	
	Down	8x 01 04 02 03 FF	
	Direct	8x 01 04 42 00 00 0p 0q FF	pq: Aperture Gain
CAM_LR_Reverse	On	8x 01 04 61 02 FF	Mirror image (Reverse L and R) ON/OFF
	Off	8x 01 04 61 03 FF	
CAM_Freeze	On	8x 01 04 62 02 FF	Still image ON/OFF
	Off	8x 01 04 62 03 FF	
CAM_PictureEffect	Off	8x 01 04 63 00 FF	Picture effect setting
	Neg.Art	8x 01 04 63 02 FF	
	B&W	8x 01 04 63 04 FF	
CAM_ICR	On	8x 01 04 01 02 FF	ICR mode ON/OFF
	Off	8x 01 04 01 03 FF	
CAM_AutoICR	On	8x 01 04 51 02 FF	Automatic ICR mode ON/OFF
	Off	8x 01 04 51 03 FF	
CAM_Memory	Reset	8x 01 04 3F 00 pp FF	p: Memory number (= 0 to 5)
	Set	8x 01 04 3F 01 pp FF	
	Recall	8x 01 04 3F 02 pp FF	
CAM_Custom_Preset	Reset	8x 01 04 3F 00 7F FF	
	Set	8x 01 04 3F 01 7F FF	
	Recall	8x 01 04 3F 02 7F FF	
CAM_Display	On	8x 01 04 15 02 FF (8x 01 06 06 02 FF)	Display ON/OFF
	Off	8x 01 04 15 03 FF (8x 01 06 06 03 FF)	
	On/Off	8x 01 04 15 10 FF (8x 01 06 06 10 FF)	

Command Set	Command	Command Packet	Comments
CAM_Mute	On	8x 01 04 75 02 FF	Mute ON/OFF
	Off	8x 01 04 75 03 FF	
	On/Off	8x 01 04 75 10 FF	
CAM_Title	Title Set1	8x 01 04 73 00 mm nn pp qq 00 00 00 00 00 FF	mm: Vposition, nn: Hposition pp: Color, qq: Blink
	Title Set2	8x 01 04 73 01 mm nn pp qq rr ss tt uu vv ww FF	mnpqrstuvw: Setting of display characters (1st to 10th character)
	Title Set3	8x 01 04 73 02 mm nn pp qq rr ss tt uu vv ww FF	mnpqrstuvw: Setting of display characters (11th to 20th character)
	Title Clear	8x 01 04 74 00 FF	Title setting clear
	On	8x 01 04 74 02 FF	Title display ON/OFF
	Off	8x 01 04 74 03 FF	
CAM_PrivacyZone	Set1	8x 01 04 76 00 0p 0q 0r 0s 0t 0u 0v 0w FF	p: X1, q: Y1, r: W1, s: H1 t: X2, u: Y2, v: W2, w: H2
	Set2	8x 01 04 76 01 0p 0q 0r 0s 0t 0u 0v 0w FF	p: X3, q: Y3, r: W3, s: H3 t: X4, u: Y4, v: W4, w: H4
	Set3	8x 01 04 76 02 0p 0q 0r 0s 0t 0u 0v 0w FF	p: X5, q: Y5, r: W5, s: H5 t: X6, u: Y6, v: W6, w: H6
	Clear	8x 01 04 77 00 FF	Zone setting clear
	On	8x 01 04 77 02 FF	Zone display ON/OFF
	Off	8x 01 04 77 03 FF	
CAM_KeyLock	Off	8x 01 04 17 00 FF	Camera control enabled/disabled
	On	8x 01 04 17 02 FF	
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	pqrs: Camera ID (= 0000 to FFFF)
CAM_ExternalLock	INT	8x 01 04 55 00 FF	Internal mode
	Line Lock	8x 01 04 55 01 FF	Line lock mode
CAM_VPhase	Stop	8x 01 04 05 00 FF	
	Up	8x 01 04 05 02 FF	
	Down	8x 01 04 05 03 FF	
	Up (Step)	8x 01 04 05 2p FF	p=step (1 to 7)
	Down (Step)	8x 01 04 05 3p FF	
	Reset	8x 01 04 05 40 FF	Restore to factory default setting value
	Direct	8x 01 04 45 00 00 0p 0q FF	pq: V-Phase (00 to FF)
	0 degree	8x 01 04 25 00 FF	Phase inversion is not performed
	180 degree	8x 01 04 25 01 FF	Phase inversion performed

4-2. FCB Inquiry Command List

Inquiry Command	Command Packet	Inquiry Packet	Comments
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_DZoomModeInq	8x 09 04 06 FF	y0 50 02 FF	D-Zoom On
		y0 50 03 FF	D-Zoom Off
CAM_DZoomC/SModeInq	8x 09 04 36 FF	y0 50 00 FF	Combine Mode
		y0 50 01 FF	Separate Mode
CAM_DZoomPosInq	8x 09 04 46 FF	y0 50 00 00 0p 0q FF	pq: D-Zoom Position
CAM_FocusModeInq	8x 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_FocusNearLimitInq	8x 09 04 28 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Near Limit Position
CAM_AFSensitivityInq	8x 09 04 58 FF	y0 50 02 FF	AF Sensitivity Normal
		y0 50 03 FF	AF Sensitivity Low
CAM_AFModeInq	8x 09 04 57 FF	y0 50 00 FF	Normal AF
		y0 50 01 FF	Interval AF
		y0 50 02 FF	Zoom Trigger AF
CAM_AFTimeSettingInq	8x 09 04 27 FF	y0 50 0p 0q 0r 0s FF	pq: Operation time, rs: Interval
CAM_WBModeInq	8x 09 04 35 FF	y0 50 00 FF	Auto
		y0 50 01 FF	In Door
		y0 50 02 FF	Out Door
		y0 50 03 FF	One Push WB
		y0 50 04 FF	ATW
		y0 50 05 FF	Manual
CAM_RGainInq	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: R Gain
CAM_BGainInq	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: B Gain
CAM_AEModeInq	8x 09 04 39 FF	y0 50 00 FF	Full Auto
		y0 50 03 FF	Manual
		y0 50 0A FF	Shutter Priority
		y0 50 0B FF	Iris Priority
		y0 50 0D FF	Bright
CAM_SlowShutterModeInq	8x 09 04 5A FF	y0 50 02 FF	Auto
		y0 50 03 FF	Manual
CAM_ShutterPosInq	8x 09 04 4A FF	y0 50 00 00 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	pq: Iris Position
CAM_GainPosInq	8x 09 04 4C FF	y0 50 00 00 0p 0q FF	pq: GainPosition
CAM_BrightPosInq	8x 09 04 4D FF	y0 50 00 00 0p 0q FF	pq: Bright Position
CAM_ExpCompModeInq	8x 09 04 3E FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_ExpCompPosInq	8x 09 04 4E FF	y0 50 00 00 0p 0q FF	pq: ExpComp Position

Inquiry Command	Command Packet	Inquiry Packet	Comments
CAM_BackLightModeInq	8x 09 04 33 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_SpotAEModeInq	8x 09 04 59 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_SpotAEPosInq	8x 09 04 29 FF	y0 50 0p 0q 0r 0s FF	pq: X position, rs: Y position
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	pq: Aperture Gain
CAM_LR_ReverseModeInq	8x 09 04 61 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_FreeseModeInq	8x 09 04 62 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_PictureEffcetModeInq	8x 09 04 63 FF	y0 50 00 FF	Off
		y0 50 02 FF	Neg.Art
		y0 50 04 FF	B&W
CAM_ICRModeInq	8x 09 04 01 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_AutoICRModeInq	8x 09 04 51 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_MemoryInq	8x 09 04 3F FF	y0 50 pp FF	pp: Memory number last recalled
CAM_DisplayModeInq	8x 09 04 15 FF	y0 50 02 FF	On
	(8x 09 06 06 FF)	y0 50 03 FF	Off
CAM_TitleDisplayModeInq	8x 09 04 74 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_MuteModeInq	8x 09 04 75 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_PrivacyZoneModeInq	8x 09 04 77 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_KeyLockInq	8x 09 04 17 FF	y0 50 00 FF	Off
		y0 50 02 FF	On
CAM_IDInq	8x 09 04 22 FF	y0 50 0p 0q 0r 0s FF	pqrs: camera ID
CAM_ExternalLockModeInq	8x 09 04 55 FF	y0 50 00 FF	Internal Mode
		y0 50 01 FF	Line Lock Mode
CAM_VPhaseSetInq	8x 09 04 25 FF	y0 50 00 FF	0 degree
		y0 50 01 FF	180 degree
CAM_VPhasePosInq	8x 09 04 45 FF	y0 50 00 00 0p 0q FF	pq: V-Phase Position
CAM_VersionInq	8x 09 00 02 FF	y0 50 00 20 mn pq rs tu vw FF	mnpq: Model Code (04xx) rstu: ROM version vw: Socket Number (=02)

4-3. Zoom-Cam Block Inquiry Command List

4-3-1. Lens Control Inquiry Command .... Command Packet 8x 09 7E 7E 00 FF

Inquiry Packet

Packet 0	7		Destination Address
	6		
	5		
	4		
	3		Source Address
	2		
	1		
	0		
Packet 1	7	0	Completion Message (50h)
	6	1	
	5	0	
	4	1	
	3	0	
	2	0	
	1	0	
	0	0	
Packet 2	7	0	
	6	0	
	5	0	
	4	0	
	3		Zoom Position (HH)
	2		
	1		
	0		
Packet 3	7	0	
	6	0	
	5	0	
	4	0	
	3		Zoom Position (HL)
	2		
	1		
	0		
Packet 4	7	0	
	6	0	
	5	0	
	4	0	
	3		Zoom Position (LH)
	2		
	1		
	0		

Packet 5	7	0	
	6	0	
	5	0	
	4	0	
	3		Zoom Position (LL)
	2		
	1		
	0		
Packet 6	7	0	
	6	0	
	5	0	
	4	0	
	3		Focus Near Limit (H)
	2		
	1		
	0		
Packet 7	7	0	
	6	0	
	5	0	
	4	0	
	3		Focus Near Limit (L)
	2		
	1		
	0		
Packet 8	7	0	
	6	0	
	5	0	
	4	0	
	3		Focus Position (HH)
	2		
	1		
	0		
Packet 9	7	0	
	6	0	
	5	0	
	4	0	
	3		Focus Position (HL)
	2		
	1		
	0		

Inquiry Packet

Packet 10	7	0	
	6	0	
	5	0	
	4	0	
	3		Focus Position (LH)
	2		
	1		
	0		
Packet 11	7	0	
	6	0	
	5	0	
	4	0	
	3		Focus Position (LL)
	2		
	1		
	0		
Packet 12	7	0	
	6	0	
	5	0	
	4	0	
	3	0	
	2	0	
	1	0	
	0	0	

Packet 13	7	0	
	6	0	
	5		DZoomMode (1:Separate, 0:Combine)
	4		AF Mode (0:Noramal, 1:Interval, 2:Zoom Trigger)
	3		
	2		AF Sensitivity (1:Normal, 0:Slow)
	1		Digital Zoom (1:On, 0:Off)
	0		Focus Mode (1:Auto, 0:Manual)
Packet 14	7	0	
	6	0	
	5	0	
	4	0	
	3		Low Contrast detect (1:Yes, 0:No)
	2		Camera Memory Recall (1:Executing, 0:Stopped)
	1		Focus command (1:Executing, 0:Stopped)
	0		Zoom command (1:Executing, 0:Stopped)
Packet 15	7	1	Terminator (FFh)
	6	1	
	5	1	
	4	1	
	3	1	
	2	1	
	1	1	
	0	1	

4-3-2. Camera Control System Inquiry Command .... Command Packet 8x 09 7E 7E 01 FF

Inquiry Packet

Packet 0	7		Destination Address
	6		
	5		
	4		
	3		Source Address
	2		
	1		
	0		
Packet 1	7	0	Completion Message (50h)
	6	1	
	5	0	
	4	1	
	3	0	
	2	0	
	1	0	
	0	0	
Packet 2	7	0	
	6	0	
	5	0	
	4	0	
	3		R Gain (H)
	2		
	1		
	0		
Packet 3	7	0	
	6	0	
	5	0	
	4	0	
	3		R Gain (L)
	2		
	1		
	0		
Packet 4	7	0	
	6	0	
	5	0	
	4	0	
	3		B Gain (H)
	2		
	1		
	0		

Packet 5	7	0	
	6	0	
	5	0	
	4	0	
	3		B Gain (L)
	2		
	1		
	0		
Packet 6	7	0	
	6	0	
	5	0	
	4	0	
	3	0	
	2		WB Mode
	1		
	0		
Packet 7	7	0	
	6	0	
	5	0	
	4	0	
	3		Aperture Gain
	2		
	1		
	0		
Packet 8	7	0	
	6	0	
	5	0	
	4		Exposure Mode
	3		
	2		
	1		
	0		
Packet 9	7	0	
	6		
	5		
	4		
	3		SpotAE (1:On, 0:Off)
	2		Back Light (1:On, 0:Off)
	1		Exposure Comp. (1:On, 0:Off)
	0		Slow Shutter (1:Auto, 0:Manual)

Inquiry Packet

Packet 10	7	0	Shutter Position
	6	0	
	5	0	
	4		
	3		
	2		
	1		
	0		
Packet 11	7	0	Iris Position
	6	0	
	5	0	
	4		
	3		
	2		
	1		
	0		
Packet 12	7	0	Gain Position
	6	0	
	5	0	
	4	0	
	3		
	2		
	1		
	0		
Packet 13	7	0	Bright Position
	6	0	
	5	0	
	4		
	3		
	2		
	1		
	0		
Packet 14	7	0	
	6	0	
	5	0	
	4	0	
	3		Exposure Comp. Position
	2		
	1		
	0		
Packet 15	7	1	Terminator (FFh)
	6	1	
	5	1	
	4	1	
	3	1	
	2	1	
	1	1	
	0	1	

4-3-3. Other Inquiry Command .... Command Packet 8x 09 7E 7E 02 FF

Inquiry Packet

Packet 0	7		Destination Address
	6		
	5		
	4		
	3		Source Address
	2		
	1		
	0		
Packet 1	7	0	Completion Message (50h)
	6	1	
	5	0	
	4	1	
	3	0	
	2	0	
	1	0	
	0	0	
Packet 2	7	0	
	6	0	
	5	0	
	4	0	
	3	0	
	2		Auto ICR (1:On, 0:Off)
	1		Key Lock (1:On, 0:Off)
	0		Power (1:On, 0:Off)
Packet 3	7	0	
	6	0	
	5		
	4		ICR (1:On, 0:Off)
	3		Freeze (1:On, 0:Off)
	2		LR Reverse (1:On, 0:Off)
	1		
	0		
Packet 4	7	0	
	6	0	
	5		Privacy Zone (1:On, 0:Off)
	4		Mute (1:On, 0:Off)
	3		Title Display (1:On, 0:Off)
	2		Display (1:On, 0:Off)
	1	0	
	0	0	

Packet 5	7	0	
	6	0	
	5	0	
	4	0	
	3		Picture Effect Mode
	2		
	1		
	0		
Packet 6	7	0	
	6	0	
	5	0	
	4	0	
	3	0	
	2	0	
	1	0	
	0	0	
Packet 7	7	0	
	6	0	
	5	0	
	4	0	
	3	0	
	2	0	
	1	0	
	0	0	
Packet 8	7	0	
	6	0	
	5	0	
	4	0	
	3		Camera ID (HH)
	2		
	1		
	0		
Packet 9	7	0	
	6	0	
	5	0	
	4	0	
	3		Camera ID (HL)
	2		
	1		
	0		

Inquiry Packet

Packet 10	7	0
	6	0
	5	0
	4	0
	3	Camera ID (LH)
	2	
	1	
	0	
Packet 11	7	0
	6	0
	5	0
	4	0
	3	Camera ID (LL)
	2	
	1	
	0	
Packet 12	7	0
	6	0
	5	External Lock (1:Provided, 0:Not provided)
	4	Memory (1:Provided, 0:Not provided)
	3	Clock (1:Provided, 0:Not provided)
	2	ICR (1:Provided, 0:Not provided)
	1	Stabilizer (1:Provided, 0:Not provided)
	0	System (1:PAL, 0:NTSC)

Packet 13	7	0
	6	0
	5	V-Phase (1:180degree, 0:0degree)
	4	External Lock Mode (1:Line Lock, 0:Internal)
	3	V-Phase (H)
	2	
	1	
	0	
Packet 14	7	0
	6	0
	5	0
	4	0
	3	V-Phase (L)
	2	
	1	
	0	
Packet 15	7	1 Terminator (FFh)
	6	1
	5	1
	4	1
	3	1
	2	1
	1	1
	0	1

4-3-4. Extensive Function Inquiry Command..... Command Packet 8x 09 7E 7E 03 FF

Inquiry Packet

Packet 0	7		Destination Address
	6		
	5		
	4		
	3		Source Address
	2		
	1		
	0		
Packet 1	7	0	Completion Message (50h)
	6	1	
	5	0	
	4	1	
	3	0	
	2	0	
	1	0	
	0	0	
Packet 2	7	0	
	6	0	
	5	0	
	4	0	
	3		Digital Zoom Position (H)
	2		
	1		
	0		
Packet 3	7	0	
	6	0	
	5	0	
	4	0	
	3		Digital Zoom Position (L)
	2		
	1		
	0		
Packet 4	7	0	
	6	0	
	5	0	
	4	0	
	3		AF start up time (H)
	2		
	1		
	0		
Packet 5	7	0	
	6	0	
	5	0	
	4	0	
	3		AF start up time (L)
	2		
	1		
	0		
Packet 6	7	0	
	6	0	
	5	0	
	4	0	
	3		AF interval time (H)
	2		
	1		
	0		
Packet 7	7	0	
	6	0	
	5	0	
	4	0	
	3		AF interval time (L)
	2		
	1		
	0		
Packet 8	7	0	
	6	0	
	5	0	
	4	0	
	3		SpotAE Position (X)
	2		
	1		
	0		
Packet 9	7	0	
	6	0	
	5	0	
	4	0	
	3		SpotAE Position (Y)
	2		
	1		
	0		

Inquiry Packet

Packet 10	7	0	
	6	0	
	5	0	
	4	0	
	3	0	
	2	0	
	1	0	
	0	0	
Packet 11	7	0	
	6	0	
	5	0	
	4	0	
	3	0	
	2	0	
	1	0	
	0	0	
Packet 12	7	0	
	6	0	
	5	0	
	4	0	
	3	0	
	2	0	
	1	0	
	0	0	
Packet 13	7	0	
	6	0	
	5	0	
	4	0	
	3	0	
	2	0	
	1	0	
	0	0	
Packet 14	7	0	
	6	0	
	5	0	
	4	0	
	3	0	
	2	0	
	1	0	
	0	0	
Packet 15	7	1	Terminator (FFh)
	6	1	
	5	1	
	4	1	
	3	1	
	2	1	
	1	1	
	0	1	

4-4. Exposure Control System Direct Position Setting Value

		NTSC	PAL
Shutter	15	10000	10000
	14	6000	6000
	13	4000	3500
	12	3000	2500
	11	2000	1750
	10	1500	1250
	0F	1000	1000
	0E	725	600
	0D	500	425
	0C	350	300
	0B	250	215
	0A	180	150
	09	125	120
	08	100	100
	07	90	75
	06	60	50
	05	30	25
	04	15	12
	03	8	6
	02	4	3
	01	2	2
	00	1	1

Iris	11	F1.4
	10	F1.6
	0F	F2.0
	0E	F2.4
	0D	F2.8
	0C	F3.4
	0B	F4.0
	0A	F4.8
	09	F5.6
	08	F6.8
	07	F8
	06	F9.6
	05	F11
	04	F14
	03	F16
	02	F19
	01	F22
	00	CLOSE
Gain	0F	28 dB
	0E	26 dB
	0D	24 dB
	0C	22 dB
	0B	20 dB
	0A	18 dB
	09	16 dB
	08	14 dB
	07	12 dB
	06	10 dB
	05	8 dB
	04	6 dB
	03	4 dB
	02	2 dB
	01	0 dB
	00	−3 dB

		Iris	Gain
Bright	1F	F1.4	28 dB
	1E	F1.4	26 dB
	1D	F1.4	24 dB
	1C	F1.4	22 dB
	1B	F1.4	20 dB
	1A	F1.4	18 dB
	19	F1.4	16 dB
	18	F1.4	14 dB
	17	F1.4	12 dB
	16	F1.4	10 dB
	15	F1.4	8 dB
	14	F1.4	6 dB
	13	F1.4	4 dB
	12	F1.4	2 dB
	11	F1.4	0 dB
	10	F1.6	0 dB
	0F	F2.0	0 dB
	0E	F2.4	0 dB
	0D	F2.8	0 dB
	0C	F3.4	0 dB
	0B	F4	0 dB
	0A	F4.8	0 dB
	09	F5.6	0 dB
	08	F6.8	0 dB
	07	F8	0 dB
	06	F9.6	0 dB
	05	F11	0 dB
	04	F14	0 dB
	03	F16	0 dB
	02	F19	0 dB
	01	F22	0 dB
	00	CLOSE	0 dB

		Iris	Gain
Exposure Compensation	0E	+7	10.5 dB
	0D	+6	9 dB
	0C	+5	7.5 dB
	0B	+4	6 dB
	0A	+3	4.5 dB
	09	+2	3 dB
	08	+1	1.5 dB
	07	0	0 dB
	06	−1	−1.5 dB
	05	−2	−3 dB
	04	−3	−4.5 dB
	03	−4	−6 dB
	02	−5	−7.5 dB
	01	−6	−9 dB
	00	−7	−10.5 dB

Various parameter

Zoom position		0000 (Optical Wide end)	to	4000 (Optical Tele end)	
Zoom position (During mix mode)	NTSC	4000 (Digital zoom ×1)	to	7700*1 (Digital zoom MAX)	*1 Maximum zoom magnification ×12 times
	PAL	4000 (Digital zoom ×1)	to	77C0*1 (Digital zoom MAX)	
Digital zoom position (During separate mode)	NTSC	00 (Digital zoom ×1)	to	DC*1 (Digital zoom MAX)	
	PAL	00 (Digital zoom ×1)	to	DF*1 (Digital zoom MAX)	
Focus position		1000 (Far end)	to	C000 (Near end)	
Focus Near limit		1000*2 (Far end)	to	C000*2 (Near end)	*2 The lower bite is fixed at 00.
AF start up time		00	to	FF	
AF interval time		00	to	FF	
Spot AE X co-ordinate		00	to	0F	
Spot AE Y co-ordinate		00	to	0F	
R gain		00	to	FF	
B gain		00	to	FF	
Aperture level		00	to	0F	
V-Phase		00	to	FF	
PrivacyZone X co-ordinate (Starting position)		00	to	0F	
PrivacyZone Y co-ordinate (Starting position)		00	to	0B	
PrivacyZone mask width		00*3	to	10	*3 When set the width or height of the mask, mask setting is disabled.
PrivacyZone mask height		00*3	to	0C	

Focus near limit distance

* As the distances on the below will be different from existing values, so use as approximate values.

Focus position	Near limit distance
1000	Over Inf
2000	8.0 m
3000	3.5 m
4000	2.0 m
5000	1.4 m
6000	1 m
7000	80 cm
8000	29 cm
9000	10 cm
A000	4.7 cm
B000	2.3 cm
C000	1.0 cm

Title setting

Vertical display position	00 to 0A	
Horizontal display position	00 to 17	
Display color	00	WHITE
	01	YELLOW
	02	VIOLET
	03	RED
	04	CYAN
	05	GREEN
	06	BLUE
Display blinks	00	OFF
	01	ON

Title setting characters

Table of character codes

00	01	02	03	04	05	06	07
A	B	C	D	E	F	G	H
08	09	0a	0b	0c	0d	0e	0f
I	J	K	L	M	N	O	P
10	11	12	13	14	15	16	17
Q	R	S	T	U	V	W	X
18	19	1a	1b	1c	1d	1e	1f
Y	Z	&		?	!	1	2
20	21	22	23	24	25	26	27
3	4	5	6	7	8	9	0
28	29	2a	2b	2c	2d	2e	2f
À	È	Ì	Ò	Ù	Á	É	Í
30	31	32	33	34	35	36	37
Ó	Ú	Â	Ê	Ô	AE	OE	Ã
38	39	3a	3b	3c	3d	3e	3f
Õ	Ñ	Ç	ß	Ä	Ï	Ö	Ü
40	41	42	43	44	45	46	47
Å	$	₣	¥	DM	£	¿	¡
48	49	4a	4b	4c	4d	4e	4f
Ø	„	:	'	.	,	/	-

Section 5
Spare Parts

5-1. Notes on Repair Parts

1. Safety Related Components Warning

WARNING

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

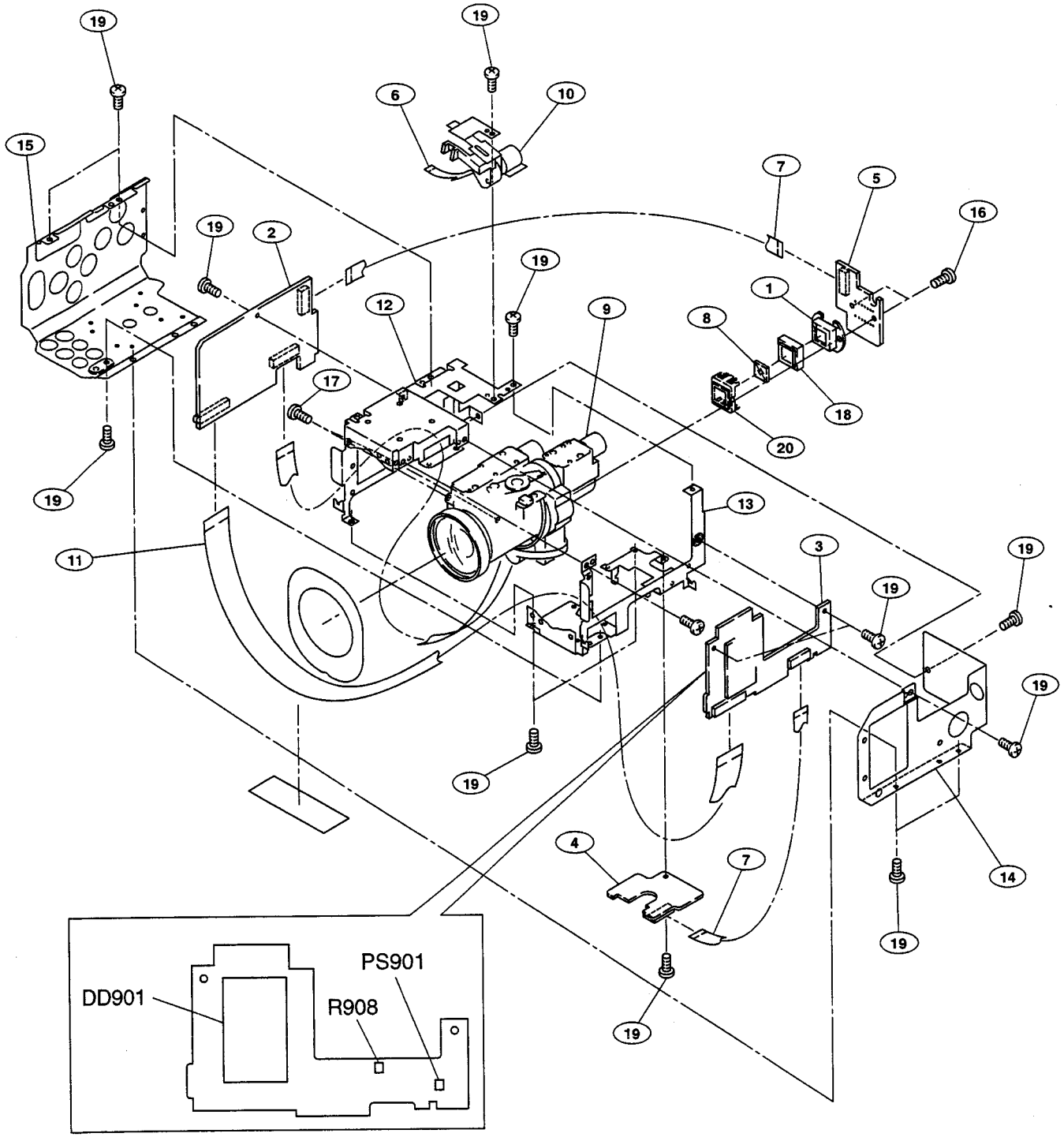
2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with "o" at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

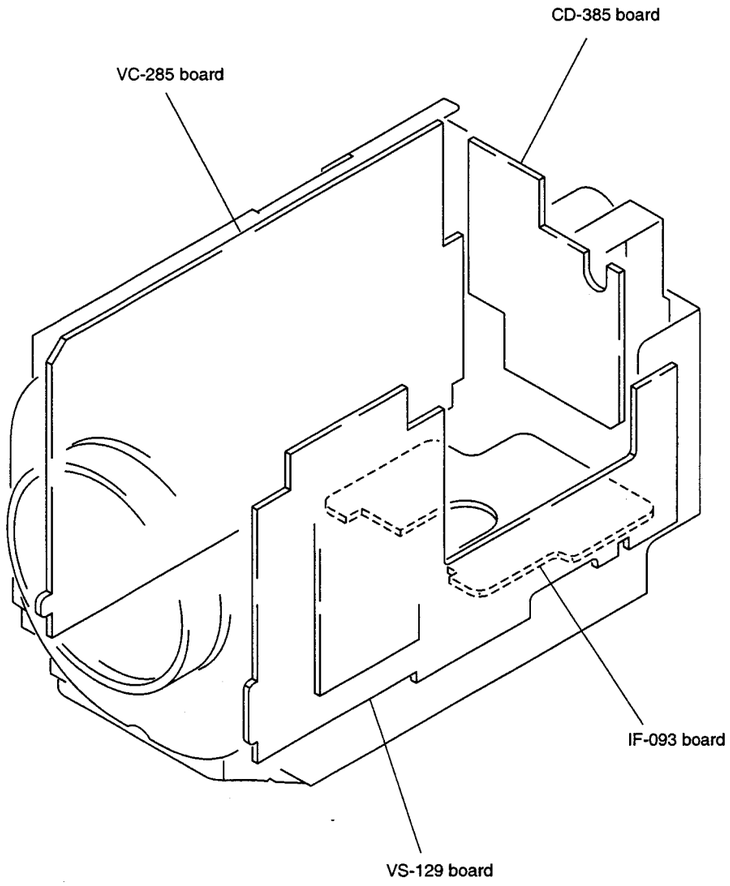
5-2. Exploded views



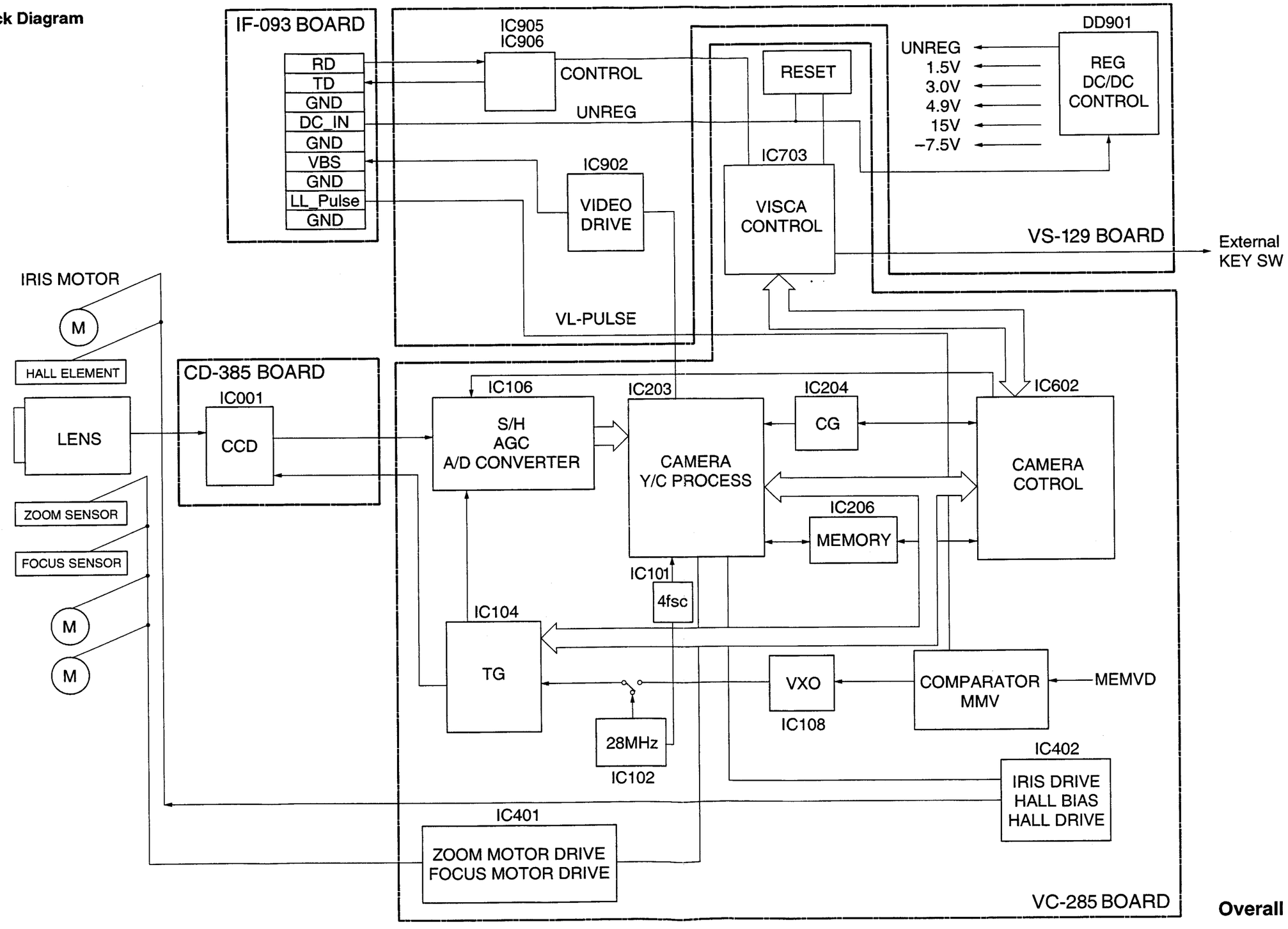
No.	Part No.	SP	Description
1	A-7031-052-A	s	CCD BLOCK ASSY
(for FCB-EX45AP)			
	A-7031-254-A	s	CCD BLOCK ASSY
(for FCB-EX45A)			
	A-7031-294-A	s	CCD BLOCK ASSY
(for FCB-EX48A, FCB-EX480A)			
	A-7031-296-A	s	CCD BLOCK ASSY
(for FCB-EX48AP, FCB-EX480AP)			
2	A-7078-057-A	s	MOUNTED CIRCUIT BOARD, VC-285 (EXLN)
(for FCB-EX45A)			
	A-7078-058-A	s	MOUNTED CIRCUIT BOARD, VC-285 (EEXLP)
(for FCB-EX45AP)			
	A-7078-072-A	s	MOUNTED CIRCUIT BOARD, VC-285 (EXHN)
(for FCB-EX48A, FCB-EX480A)			
	A-7078-075-A	s	MOUNTED CIRCUIT BOARD, VC-285 (EXHP)
(for FCB-EX48AP, FCB-EX480AP)			
3	A-7078-059-A	s	MOUNTED CIRCUIT BOARD, VS-129 (EXL)
(for FCB-EX45A, FCB-EX45AP)			
	A-7078-073-A	s	MOUNTED CIRCUIT BOARD, VS-129 (NS)
(for FCB-EX480A, FCB-EX480AP)			
	A-7078-076-A	s	MOUNTED CIRCUIT BOARD, VS-129 (EXH)
(for FCB-EX48A, FCB-EX48AP)			
4	A-7078-060-A	s	MOUNTED CIRCUIT BOARD, IF-093 (L)
(for FCB-EX45A, FCB-EX45AP)			
	A-7078-074-A	s	MOUNTED CIRCUIT BOARD, IF-093 (H)
(for FCB-EX48A, FCB-EX48AP, FCB-EX480A, FCB-EX480AP)			
5	A-7078-061-A	s	MOUNTED CIRCUIT BOARD, CD-385
6	1-672-209-11	s	PRINTED WIRING BOARD, FP-64 FLEXIBLE
(for FCB-EX480A, FCB-EX480AP)			
7	1-757-303-11	s	CABLE, FLEXIBLE FLAT (FFC-306)
8	1-758-084-21	s	FILTER BLOCK, OPTICAL
9	1-758-285-11	s	DEVICE, LENS (VCL-4118VD)
10	1-763-206-11	s	MOTOR (IR USE)
(for FCB-EX480A, FCB-EX480AP)			
11	1-790-255-11	s	CABLE, FLEXIBLE FLAT (FFC-262)
12	3-072-701-01	s	FRAME (R)
13	3-072-702-01	s	FRAME (L)
14	3-072-703-01	s	COVER (R)
15	3-072-704-01	s	COVER (L)
16	3-318-203-11	s	SCREW +BTP 1.7X6
17	3-948-339-61	s	SCREW, TAPPING (2X5)
18	3-968-054-11	s	RUBBER (FM), SHIELD
19	3-968-729-61	s	SCREW +P M2X3
20	3-978-981-11	s	ADAPTOR (FK), CCD FITTING
DD901	1-476-991-11	s	CONVERTER UNIT, DC-DC
PS901	1-576-282-11	s	RINK, SQUARE CHIP TYPE IC
R908	1-216-807-11	s	RESISTOR, CHIP 68 1/16W 1608

Section 6
Diagrams

6-1. Board Location



6-2. Block Diagram



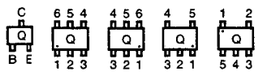
Overall

6-3. Frame Wiring

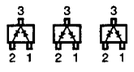
THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

- **For printed wiring boards.**
- ▒▒▒: Pattern from the side which enable seeing.
  (The other layer's patterns are not indicated.)
- Through hole is omitted.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.

Transistor



Diode



- **For schematic diagrams.**
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistor are 1/16W unless otherwise noted.
  kΩ : 1000 Ω, MΩ : 1000 kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example

C541	L452
22U	10UH
TA A	2520

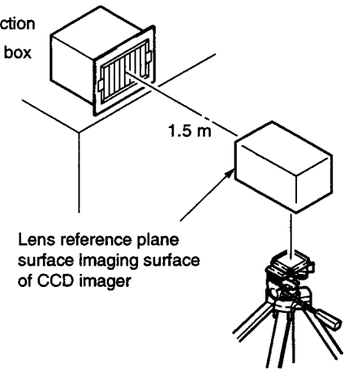
Kinds of capacitor — Temperature chracteristics — External dimensions (mm)

- Constants of resistors, capasitors, ICs and etc. with XX indicate that they are not used. In such cases, the unused circuits may be indicated.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Circled numbers refer to waveforms.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- **Measuring conditions waveform.**
- The object is color bar chart of pattern box.

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

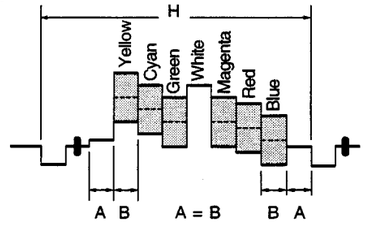


Fig. a (Video output terminal output waveform)

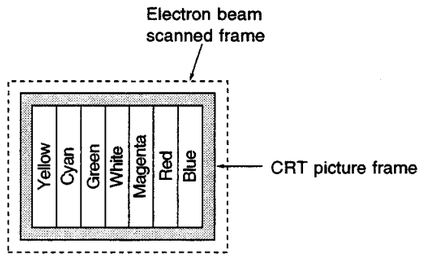
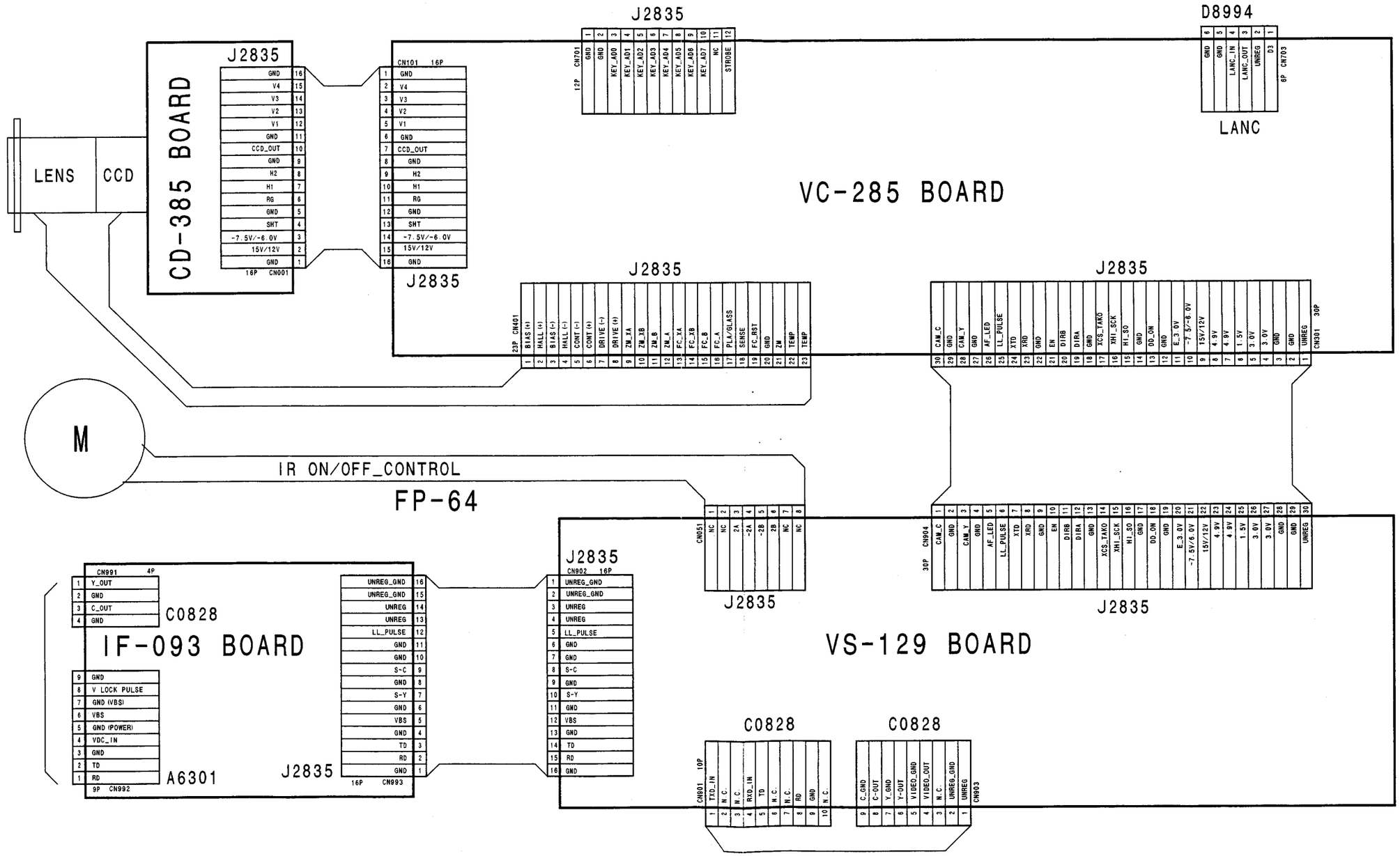


Fig. b (Picture on monitor TV)


J2835
D8994
CD-385 BOARD
J2835
LENS
CCD
GND
V4
V3
V2
V1
GND
CCD_OUT
GND
H2
H1
RG
GND
SHT
-7.5V/-6.0V
15V/12V
GND
16P CN001
CN101 16P
GND
V4
V3
V2
V1
GND
CCD_OUT
GND
H2
H1
RG
GND
SHT
-7.5V/-6.0V
15V/12V
GND
J2835
12P CN701
GND
GND
KEY_A00
KEY_A01
KEY_A02
KEY_A03
KEY_A04
KEY_A05
KEY_A06
KEY_A07
NC
STROBE
6P CN703
GND
GND
LANC_IN
LANC_OUT
UNREG
D3
LANC
VC-285 BOARD
J2835
23P CN401
BIAS (+)
HALL (+)
BIAS (-)
HALL (-)
CONT (-)
CONT (+)
DRIVE (-)
DRIVE (+)
ZM_XA
ZM_XB
ZM_B
ZM_A
FC_XA
FC_XB
FC_B
FC_A
PLK/GLASS
SENSE
FC_RST
GND
ZM
TEMP
TEMP
J2835
30P CN301
CAM_C
GND
CAM_Y
GND
AF_LED
LL_PULSE
XTD
XRD
GND
EN
DIRB
DIRA
GND
XCS_TAKO
XHI_SCK
HI_SO
GND
DD_ON
GND
E_3.0V
-7.5V/-6.0V
15V/12V
4.9V
4.9V
1.5V
3.0V
3.0V
GND
GND
UNREG
M
IR ON/OFF_CONTROL
FP-64
CN051
NC
NC
2A
-2A
-2B
2B
NC
NC
J2835
30P CN904
CAM_C
GND
CAM_Y
GND
AF_LED
LL_PULSE
XTD
XRD
GND
EN
DIRB
DIRA
GND
XCS_TAKO
XHI_SCK
HI_SO
GND
DD_ON
GND
E_3.0V
-7.5V/-6.0V
15V/12V
4.9V
4.9V
1.5V
3.0V
3.0V
GND
GND
UNREG
J2835
VS-129 BOARD
CN991 4P
Y_OUT
GND
C_OUT
GND
C0828
IF-093 BOARD
GND
V LOCK PULSE
GND (VBS)
VBS
GND (POWER)
VDC_IN
GND
TD
RD
A6301
9P CN992
J2835
UNREG_GND
UNREG_GND
UNREG
UNREG
LL_PULSE
GND
GND
S-C
GND
S-Y
GND
VBS
GND
TD
RD
GND
16P CN993
J2835
CN902 16P
UNREG_GND
UNREG_GND
UNREG
UNREG
LL_PULSE
GND
GND
S-C
GND
S-Y
GND
VBS
GND
TD
RD
GND
C0828
C0828
CN901 10P
TXD_IN
N.C.
N.C.
RXD_IN
TD
N.C.
N.C.
RD
GND
N.C.
C_GND
C-OUT
Y_GND
Y-OUT
VIDEO_GND
VIDEO_OUT
N.C.
UNREG_GND
UNREG
CN903

Note on the CCD imager replacement

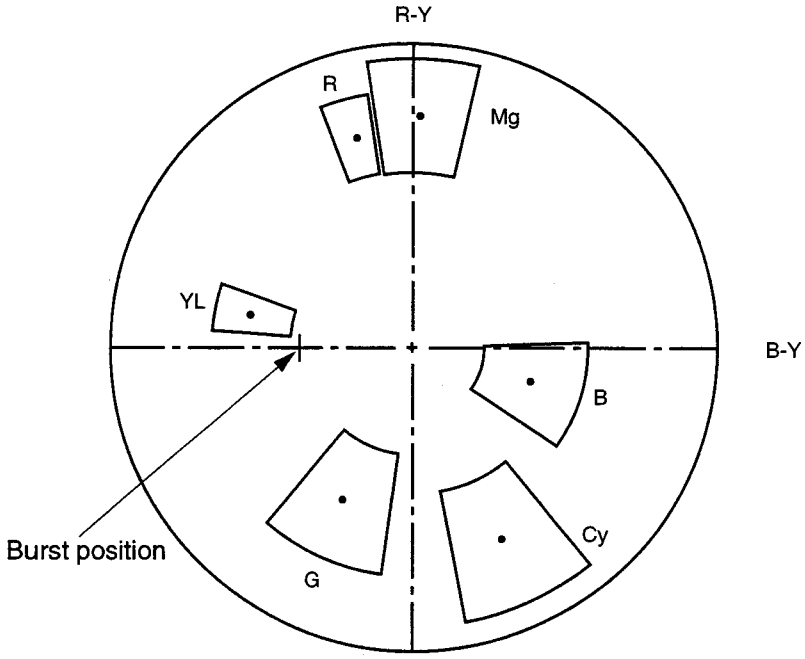
- The CCD imager is not mounted for the already mounted CD-385 board supplied as the repair parts.
  When replacing the CD-385 board, remove the CCD imager from the old board and install it on the new board.
- Perform all adjustments of the camera block when the CCD imager has been replaced.
- Handle the CCD imager with attention such as MOS IC as it may be broken by static electricity in the structure.
  Also, prevent the receiving light section from dust attached and strong light.

6-5

VECTORSCOPE SCALE

OHPシートにコピーしてください。
Copy on a transparent sheet.

<For NTSC model>



<For PAL model>